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1.0 EXECUTIVE SUMMARY

This report presents the results of the November 1997 and May 1998 ground water sampling events at the Livingston Rail Yard (LRY) in Livingston, Montana. Long-term locomotive fueling operations at the LRY resulted in a plume of free and residual diesel fuel near the water table of the underlying aquifer beneath a portion of the LRY. Locomotive maintenance and waste water handling operations also resulted in the presence of chlorinated volatile organic compounds (VOCs) in soils at specific areas around the LRY. In addition, there exists a plume of dissolved chlorinated VOCs in the ground water beneath and downgradient of the site.

The November 1997 semi-annual sampling round was conducted November 10 through 18, 1997. Twenty monitoring wells were sampled as part of this sample event. Eleven of the samples were analyzed for volatile organic compounds (VOCs) by EPA Method 601, and thirteen of the samples were analyzed for natural attenuation parameters (NAPs). Thirty-one samples were analyzed as part of the May 1998 sampling event. Twenty-six of these samples were analyzed for VOCs, and ten were analyzed for NAPs.

November 1997 and May 1998 ground water samples contained dissolved chlorinated-VOC concentrations that continued the long-term declines observed during the past nine years of ground water monitoring. VOC concentrations in the ground water have declined more than 90 percent since May 1989.

Of the wells containing measurable free product, most contain less than one-quarter-foot total apparent product thickness. Assuming that apparent product thickness is two to four times the actual thickness, this reveals that the majority of the plume contains less than one inch of free product.

Analyses for NAPs include both reactants and products of biodegradation. NAP analyses reveal that petroleum-degrading microbes are utilizing a variety of the electron acceptors, including oxygen, NO_3, and Fe^{+3}, to biodegrade hydrocarbons beneath the free-product plume.

2.0 INTRODUCTION

This report is submitted to the Montana Department of Environmental Quality (MDEQ) by The Burlington Northern and Santa Fe Railway Company (BNSF). It presents results of ground water samples and free-product thickness measurements collected during the November 1997 semiannual and May 1998 annual sampling rounds at the LRY, in Livingston, Montana.

The LRY is located in the northeast part of the city of Livingston, Montana, as shown on Figure 1.0. It was constructed in 1883 by the Northern Pacific Railroad (NPRR) and, except for an 18-month period during 1986 and 1987, has operated continuously since that time. Since the introduction of diesel locomotives in the 1940's, leaks and spills during diesel fuel handling have resulted in a plume of free and residual diesel fuel near the water table of the underlying aquifer. Locomotive maintenance and waste water handling has also resulted in the presence of chlorinated volatile organic compounds (VOCs) in soils at specific areas around the rail yard. In several places these chlorinated VOCs reached the underlying aquifer and created a plume of dissolved chlorinated VOCs in the ground water beneath and downgradient of the site.

The Burlington Northern Railroad (BNRR), the successor to NPRR, began environmental investigations at the LRY in October 1985. Since 1989, the LRY has been investigated and remediated under a Modified Partial Consent Decree (MPCD) between BNRR (later BNSF) and the MDEQ. The MPCD, signed by Charles C. Lovell, U.S. District Judge, on April 27, 1990, specifies the process by which the investigation and remediation of environmental conditions at the LRY will proceed. Regularly scheduled ground water monitoring has continued since May 1989.

The LRY is underlain by an alluvial aquifer composed of coarse-grained sand and gravel. This aquifer is herein referred to as the Livingston aquifer. Beneath most of the LRY, the water table of the aquifer is 15 to 25 feet below the ground surface. The saturated thickness of the aquifer ranges from 10 feet to more than 50 feet.

Section 3.0 of this report presents the number of samples collected, the sample dates, and the analytical methods used for the November 1997 and May 1998 sampling events. Section 4.0 presents the analytical results of these ground water samples. Results are presented on tables showing the November 1997 and May 1998 sampling events and on maps showing the extent of dissolved chlorinated VOCs based on the May 1998 analytical results. The long-term declines in VOC concentrations are illustrated on graphs showing chlorinated VOC concentrations at specific wells during all ground water sampling events since May 1989.

3.0 GROUND WATER SAMPLING EVENTS

The November 1997 and May 1998 sampling rounds were conducted in accordance with the ground water sampling schedule approved by MDEQ in February 1996. That sampling schedule specifies the sampling of twelve monitoring wells during semiannual sampling events (November) and twenty-eight monitoring and private wells during annual sampling events (May). Table 1.0 lists the November 1997 and May 1998sample numbers, sample locations, sample dates, and sample analyses .

The locations of all November 1997 and May 1998 sampling points are shown on Figure 1.0. Tables 2.0, 3.0, and 4.0 summarize analytical results for tetrachloroethene (PCE); trichloroethene (TCE); and cis-1,2-dichloroethene (DCE), respectively. Laboratory analytical results are presented in Appendix A. A data validation report is included as Appendix B. Details of each sampling event are presented below.

3.1 November 1997 Semiannual Ground Water Sampling Event

The November 1997 semiannual sampling round was conducted November 10 through 18, 1997. Twenty monitoring wells were sampled as part of this round. Eleven of the samples were analyzed for VOCs by EPA Method 601, and thirteen of the samples were analyzed for NAPs. There were also three field duplicates and one trip blank sent to the laboratory. All samples were analyzed at Energy Laboratories, Inc. in Billings, Montana.

3.2 May 1998 Annual Ground Water Sampling Event

The May 1998 annual ground water sampling event was conducted May 18 through 29, 1998. During this sampling round, twenty-six of the scheduled thirty monitoring wells were sampled (Table 1.0). The four wells that were not sampled were Wells 3, 8, 89-9, and L-87-5. Well 3 could not be accessed due to a damaged well cover that will require repair. Well 8 was dry and could not be sampled. Well 89-9 was not sampled due to equipment from Livingston Rebuild Center blocking access to the well. Well L-87-5 was mistakenly missed during the sampling.

Thirty-one samples were analyzed as part of the May 1998 sample event: twenty-seven were primary samples, two were field duplicates, and two were trip blanks. Twenty-five of the primary samples were analyzed for VOCs by EPA Method 601, and one was analyzed for VOCs by EPA Method 524.2. Ten of the primary samples were analyzed for the NAPs dissolved oxygen (DO), sulfate (SO_4), nitrate (NO_3), ferrous iron (Fe^{2+}), and methane (CH_4). NAP analyses were conducted to evaluate the extent of natural biodegradation of diesel fuel occurring in the aquifer beneath the free- and residual-product plume.

4.0 SAMPLE RESULTS AND DISCUSSION

This section presents the results of samples collected during the November 1997 and May 1998 sampling events. Analytical results for PCE, TCE, and cis-DCE are presented on Tables 2.0 through 4.0, respectively. Results from the May sampling event are also presented on Figures 2.0 through 4.0, which show the distribution of dissolved PCE, TCE, and cis-DCE concentrations. Analytical results for the NAPs are shown on Table 5.0.

Apparent thickness of the free-product plume was measured in monitoring and observation wells during both sampling events. Thickness measurements represent the "apparent" free-product thickness as opposed to the actual thickness. The apparent thickness of free product is approximately two to four times greater than the actual free-product thickness in the aquifer. Apparent thickness measurements are listed on Table 7.0.

4.1 Ground Water VOC Sample Results

November 1997 and May 1998 ground water samples contained dissolved chlorinated-VOC concentrations consistent with the long-term declines observed during the past nine years of ground water monitoring. These concentration declines are due to the limited total mass of chlorinated VOCs originally present at the LRY and also to VOC removal during source control activities instituted on the LRY during the remedial investigation and the feasibility study . Source control activities were described in the Final Draft Soil and Ground Water Feasibility Study Report (Envirocon, 1998).

Figure 2.0 shows the distribution of dissolved PCE based on the May 1998 annual sampling round. PCE is present in a plume extending from the Electric Shop northeastward past the Yellowstone River. Although PCE is detectable over a large area, PCE concentrations above 100 ug/l are restricted to the area beneath and downgradient from the northern half of the Electric

Shop and the center of the Locomotive Shop. The remainder of the plume contains PCE concentrations of less than 100 ug/l.

Figure 3.0 shows the distribution of dissolved TCE based on the May 1998 sampling event. Most monitoring wells contained TCE concentrations below the 5 ug/l Maximum Contaminant Level (MCL). TCE concentrations above the 5 ug/l MCL are restricted to a narrow area stretching from the Waste Water Treatment Plant (WWTP) northeastward towards the Yellowstone River.

Figure 4.0 shows the distribution of cis-DCE concentrations in the aquifer for May 1998. No cis-DCE concentrations were detected above the 70 ug/l MCL during this sampling event. The primary source area for cis-DCE is the WWTP vicinity, including the WWTP grit chambers and the WWTP sump. There is also a small area near the Locomotive Shop and Well 92-1 that contains cis-1,2-DCE at concentrations above 10 ug/l.

Monitoring Wells 94-1 and 94-2 are east of the map area shown on Figure 2.0. Monitoring Well 94-1 is located approximately 1,000 feet east of the Yellowstone River and 1,500 feet north of Highway 89. Monitoring Well 94-2 is located approximately 1,000 feet east of the Yellowstone River and 100 feet south of Highway 89. As shown on Table 2.0, samples from both of these wells contained detectable PCE during November 1997 and May 1998, although the detections at Well 94-2 were below the 0.5 ug/l practical quantification limit. None of these detections were above the 5 ug/l MCL.

Vinyl chloride was detected in ground water samples from well L-87-2 at concentrations of 35 ug/l (November) and 18 ug/l (May). Vinyl chloride was also detected downgradient from the WWTP at concentrations of 1.6 ug/l (November) and 0.84 ug/l (May) in Well L-88-10. It is suspected that this vinyl chloride is created by degradation of cis-1,2-DCE in the hydrocarbon smear zone beneath the WWTP area. The MCL for vinyl chloride is 2 ug/l.

4.1.1 VOC Concentration Declines

The overall decline in dissolved chlorinated-VOC concentrations is illustrated by the plotting of VOC concentrations from specific wells between May 1989 and May 1998. Figures 5.0 through 9.0 show PCE concentration declines in Wells L-88-10, L-88-8, L-87-5, 89-4, and 89-9. These wells are representative of a large portion of the PCE plume. PCE concentrations in these wells have declined more than 90 percent since May 1989.

The declines in cis-1,2-DCE concentrations have been greater than those of PCE. Figures 10.0 through 12.0 show the cis-1,2-DCE concentration declines in Monitoring Wells L-87-2, L-88-10, and LS-11. These three wells span the area in which cis-1,2-DCE concentrations are elevated, as shown on Figure 4.0.

4.1.2 MDEQ Split Sample Results

MDEQ collected samples from Wells 1, 2, L-87-4 and L-88-13 during the May sampling round. MDEQ samples were analyzed for semivolatile organic compounds (SVOCs) by EPA Method 8270 and total petroleum hydrocarbons (TPH) by EPA Method 418.1 at Energy Laboratories, Inc. Table 5.0 summarizes the results of the MDEQ samples. BNSF had the samples from these wells analyzed for VOCs by EPA Method 601; therefore, no direct comparison of results is possible.

The MDEQ sample from Well L-87-4 contained fluorene, 1-methylnaphthalene, and di-n-butylphthalate at concentrations below the practical quantification limit of 12 ug/l. This sample also contained a TPH concentration of 7.1 mg/l. None of the other three samples contained detectable SVOCs or TPH.

4.2 Natural Attenuation Parameter Results

Selected wells were sampled for the NAPs DO, SO_4, NO_3, and Fe^{+2} during both the November 1997 and May 1998 sampling rounds. These parameters indicate the extent of natural biodegradation that is occurring in the aquifer beneath and around the diesel fuel plume. DO, NO_3, and SO_4 are electron acceptors used by petroleum-degrading bacteria, whereas Fe^{+2} and CH_4 are products of petroleum degradation (MPCA, 1996; Sturman and Meyers, 1997). Under aerobic conditions, biodegradation of hydrocarbons proceeds utilizing oxygen as the terminal electron acceptor. As oxygen is depleted, the alternative electron acceptors utilized are, in order of importance, NO_3, manganese (Mn^{+4}), Fe^{+3}, SO_4, and ultimately carbon dioxide (CO_2). Utilization of Fe^{+3} yields soluble Fe^{+2} as a reaction product. Utilization of CO_2 yields CH_4 as a reaction product. The reactants and products of biodegradation that are most easily measured are DO, NO_3, SO_4, Fe^{+2}, and CH_4; therefore, these were the compounds analyzed for during the November 1997 and May 1998 sampling rounds.

Thirteen samples were analyzed for NAPs during the November sampling round and ten samples were analyzed for NAPs during the May sampling round. The wells to be sampled were chosen in two groups. One group included wells that were within or immediately downgradient of the free-product plume. The second group, chosen to get background NAP concentrations, were located away from the diesel fuel plume. Figure 13.0 shows the locations of the wells and the results of the samples collected during May 1998.

Table 5.0 lists the NAP results for all of the samples. DO concentrations are, on average, much lower for wells within and downgradient from the plume. This difference in DO concentrations

indicates that DO is being utilized by petroleum-degrading microbes within the plume area.

NO_3 concentrations were all less than 1 mg/l for wells within the plume (with the exception of Well 95-1). In contrast, most of the wells away from the plume contained NO_3concentrations above 1 mg/l. This indicates that NO_3 is also being used as an electron acceptor by petroleum-degrading microbes within the plume area.

None of the wells away from the plume contained detectable Fe^{+2}; however, three wells within the plume (L-87-2, L-87-7, and L-87-8) contained detectable Fe^{+2}. This indicates that Fe^{+2} is being generated by reduction of Fe^{+3} within the plume by petroleum-degrading microbes.

Wells away from the plume contained CH_4 concentrations of 2 to 6 ppm. In contrast, CH_4 concentrations within the plume were as high as 7530 ppm. The wells with the lowest NO_3 concentrations also contained the largest CH_4 concentrations. This indicates that in the most anoxic parts of the plume, NO_3 is being used as an electron acceptor and CO_2 is being reduced to CH_4 by petroleum-degrading microbes.

In summary, NAP analyses reveal that petroleum-degrading microbes are utilizing a variety of the electron acceptors, including oxygen, NO_3, and Fe^{+3}, to biodegrade hydrocarbons. The only potential electron acceptor that does not show a clearly recognizable decline within the plume is SO_4. This may be due to the large natural variation in SO_4 concentrations, as indicated by the values obtained from wells away from the diesel plume.

4.3 Free-Product Thickness Measurements

Table 7.0 shows the free-product thickness measurements collected between February 1995 and May 1998. Figure 14.0 shows the general outline

of the free-product plume, the locations of the wells measured during November 1997, and the November product thickness values. Of the wells containing measurable free product, most contain less than one-quarter-foot total apparent product thickness. Assuming that apparent product thickness is two to four times the actual thickness, this reveals that the majority of the plume contains less than one inch of free product.

5.0 CONCLUSIONS

This report presents the results of the ninth complete year of ground water sampling at the LRY. The two primary ground water concerns at the LRY are a plume of dissolved chlorinated VOCs in the aquifer and a plume of free and residual diesel fuel at the water table. These two plumes had separate source areas and only partially overlap.

The concentrations of dissolved chlorinated VOCs have declined significantly since 1989. The 1997 and 1998 ground water monitoring results are consistent with this trend. At most monitoring well locations, the dissolved chlorinated-VOC concentrations have declined more than 90 percent since 1989.

The apparent thickness of the free-product plume has also declined since regularly scheduled measurements began in 1989. This is, at least in part, due to biodegradation by indigenous microbes. Measurements of both reactants and products of biodegradation within ground water beneath the plume reveal that biodegradation is occurring.

6.0 REFERENCES

MPCA, 1996, Assessment of Natural Biodegradation at Petroleum Release Sites; Minnesota Pollution Control Agency Fact Sheet #3.21; May 1996.

Sturman and Meyers, 1997, Intrinsic Bioremediation as a Remedial Option at Petroleum Contaminated Sites; notes and appendices from presentation.

Envirocon, 1998, Final Draft Soil and Ground Water Feasibility Study Report, Livingston Rail Yard, Livingston, Montana. Prepared for The Burlington Northern and Santa Fe Railway Company; January 1998.

TABLES

Table 1.0
November 1997 and May 1998 Ground Water Samples
1998 Annual Ground Water Report

Sample Number	Sample Location	Sample Date	Analyses
140101-1584	89-4	11/10/97	601
140101-1585	92-2	11/10/97	601
140101-1586	94-2	11/10/97	601
140101-1587	89-3	11/11/97	601
140101-1588	92-1	11/11/97	601
140101-1589	90-3	11/11/97	601
140101-1590	L-88-10	11/12/97	601, NAP
140101-1591	Trip Blank	11/12/97	601
140101-1592	L-88-13	11/12/97	NAP
140101-1593	L-87-8	11/12/97	601, NAP
140101-1594	L-87-7	11/12/97	NAP
140101-1595	L-87-4	11/12/97	NAP
140101-1596	92-3	11/13/97	NAP
140101-1597	2	11/13/97	NAP
140101-1598	L-87-1	11/13/97	NAP
140101-1599	L-87-3	11/13/97	NAP
140101-1600	89-2	11/13/97	NAP
140101-1601	L-87-2	11/14/97	601, NAP
140101-1602	L-87-2 dupl.	11/14/97	601
140101-1603	94-1	11/14/97	601
140101-1604	94-1 dupl.	11/14/97	601
140101-1605	89-9	11/18/97	601
140101-1606	L-87-2	11/18/97	NAP
140101-1607	95-1	11/18/97	NAP
140101-1608	92-4	5/18/98	601
140101-1609	94-1	5/18/98	601
140101-1610	89-2	5/19/98	601, NAP
140101-1611	92-2	5/19/98	601
140101-1612	LS-11	5/19/98	601
140101-1613	90-3	5/20/98	601
140101-1614	89-4	5/20/98	601
140101-1615	89-4 dupl.	5/20/98	601
140101-1616	89-10	5/20/98	601
140101-1617	89-6	5/20/98	601
140101-1618	Rainbow	5/20/98	601
140101-1619	1	5/21/98	601
140101-1620	2	5/21/98	601, NAP
140101-1621	L-88-13	5/21/98	601, NAP
140101-1622	L-87-4	5/21/98	601, NAP
140101-1623	4	5/21/98	601
140101-1624	Trip Blank	5/21/98	601
140101-1625	5	5/21/98	601
140101-1626	6	5/21/98	601
140101-1627	89-3	5/27/98	601
140101-1628	L-87-2	5/28/98	601, NAP
140101-1629	L-87-7	5/28/98	601, NAP
140101-1630	L-87-7 dupl.	5/28/98	601
140101-1631	L-87-8	5/28/98	601, NAP
140101-1632	L-88-10	5/28/98	601, NAP
140101-1633	Trip Blank	5/28/98	601
140101-1634	L-87-3	5/28/98	601, NAP
140101-1635	92-1	5/28/98	601
140101-1636	92-4	5/29/98	601
140101-1637	92-3	5/29/98	NAP
140101-1638	B-Street	5/29/98	524.2

Notes:
601 - EPA Method 601 - VOCs
524.2 - EPA Method 524.2 - VOCs
NAP - Natural Attenuation Parameters - DO, NO_3, SO_4, Fe^{+2}, CH_4

Table 2.0
PCE Analytical Results
1998 Annual Ground Water Report

Sample Location	November 1995 (ug/l)	May 1996 (ug/l)	November 1996 (ug/l)	May 1997 (ug/l)	November 1997 (ug/l)	May 1998 (ug/l)
1	<0.5J			<0.5		**<0.5**
2		<0.5J		0.5J		**<0.5J**
3		<0.5J		<0.5		**NS**
4		<0.5J		<0.5		**<0.5**
5	0.63	<0.5J		<0.5		**<0.5J**
6	1.2	1.4		<0.5		**0.74**
89-2	<0.5	<0.5		<0.5		**<0.5**
89-3	199	205	172	163	204	**134**
89-4	84	137	NS[1]	87	99	**59**
89-6		16		12		**15**
89-9	62		59	69	58	**NS**
89-10		55		35		**48**
90-3		29	12	11	8.4	**20**
90-6	0.73					
92-1	109	55	NS[2]	85	217	**168**
92-2	27	9.7	21	NS[3]	13	**8.1**
92-3	<0.5J					
92-4	4.4	28		2.4		**33**
94-1	2.4	1.8	3.6	NS[3]	1.9	**1.6**
94-2	<0.5J	<0.5J	<0.5J	NS[3]	<0.5J	**<0.5J**
L-87-2	1.8	<0.5	<0.5	<0.5	<0.5	**<0.5J**
L-87-3	89	76		44		**49**
L-87-4		<0.5		<0.5		**<0.5**
L-87-5	51	64	NS (dry)	69		**NS**
L-87-7				<0.5		**<0.5**
L-87-8	3.9	2.4	2.4	2.5	1.7	**3.4**
L-88-10	40	30	29	19	28	**27**
L-88-13		16		15		**14**
LS-11	20	34		25		**17**
B-Street		<0.5		<0.5		**<0.5**
Rainbow				NS[4]		**7.6**

Notes:

J - Compound was detectable but less than the practical quantification limit.

NS[1] - Well 89-4 had been vandalized and could not be sampled in November 1997.

NS[2] - Well 92-1 was mistakenly not sampled during November 1997.

NS[3] - Wells 92-2, 94-1, and 94-2 were not accessible for sampling during May 1997 due to flooding of the Yellowstone River.

NS[4] - The Rainbow Motel well was not operational during May 1997.

Table 3.0
TCE Analytical Results
1998 Annual Ground Water Report

Sample Location	November 1995 (ug/l)	May 1996 (ug/l)	November 1996 (ug/l)	May 1997 (ug/l)	November 1997 (ug/l)	May 1998 (ug/l)
1	<0.5			<0.5		<0.5
2		<0.5		<0.5		<0.5
3		<0.5		<0.5		NS
4		<0.5		<0.5		<0.5
5	<0.5	<0.5		<0.5		<0.5
6	<0.5	<0.5		<0.5		<0.5
89-2	<0.5	<0.5		<0.5		<0.5
89-3	0.59	1.4	0.82	0.97	2.2	0.7
89-4	1.5	1.2	NS[1]	1.1	1.7	1.4
89-6		<0.5J		<0.5J		<0.5J
89-9	2.7		2.4	5.6	4.1	NS
89-10		5.5		4.3		4.9
90-3		2.6	2.1	1.2	2.0	2.0
90-6	<0.5					
92-1	<0.5J	<0.5J	NS[2]	<0.5J		1.1
92-2	3.7	0.67	2.0	NS[3]	1.2	0.57
92-3	<0.5					
92-4	1.0	1.4		<0.5J		1.3
94-1	<0.5	<0.5	<0.5	NS[3]	<0.5	<0.5
94-2	<0.5	<0.5	<0.5	NS[3]	<0.5	<0.5
L-87-2	3.7	14	1.9	3.2	4.5	11
L-87-3	8.8	8.3		7.5		6.8
L-87-4		<0.5		<0.5		<0.5
L-87-5	3.0	3.4	NS(dry)	5.0		NS
L-87-7				<0.5		<0.5
L-87-8	1.9	2.2	1.6	0.74	1.1	3.8
L-88-10	15	11	16	8.7	11	9.1
L-88-13		2.5		2.4		2.3
LS-11	6.8	6.8		5.6		6.8
B-Street		<0.5		<0.5		<0.5
Rainbow				NS[4]		1.6

Notes:

J - Detectable but less than the practical quantification limit.
NS[1] - Well 89-4 had been vandalized and could not be sampled in November 1997.
NS[2] - Well 92-1 was mistakenly not sampled during November 1997.
NS[3] - Wells 92-2, 94-1, and 94-2 were not accessible for sampling during May 1997 due to flooding of the Yellowstone River.
NS[4] - The Rainbow Motel well was not operational during May 1997.

Table 4.0
cis-1,2-DCE Analytical Results
1998 Annual Ground Water Report

Sample Location	November 1995 (ug/l)	May 1996 (ug/l)	November 1996 (ug/l)	May 1997 (ug/l)	November 1997 (ug/l)	May 1998 (ug/l)
1	<0.5			<0.5		<0.5
2		<0.5		<0.5		<0.5
3		<0.5		<0.5		
4		<0.5		<0.5		<0.5
5	<0.5	<0.5		<0.5		<0.5
6	<0.5	<0.5		<0.5		<0.5
8				NS (dry)		
89-2	<0.5	<0.5		<0.5		<0.5
89-3	<0.5	0.54	<0.5	<0.5	<0.5	<0.5
89-4	3.1	2.9	NS[1]	2.5	6.2	4.0
89-6		<0.5		<0.5		<0.5
89-9	1.1		0.84	3.2	4.3	
89-10		8.3		4.2		5.4
90-3		2.8	1.7	<0.5J	2.6	1.0
90-6	<0.5					
92-1	12	21	NS[2]	8.6	4.6	12
92-2	4.1	0.74	1.6	NS[3]	0.92	<0.5J
92-3	<0.5					
92-4	<0.5J	0.81		<0.5		1.4
94-1	<0.5	<0.5	<0.5	NS[3]	<0.5	<0.5
94-2	<0.5	<0.5	<0.5	NS[3]	<0.5	<0.5
L-87-2	88	23	54	21	41	19
L-87-3	11	14		12		7.9
L-87-4		<0.5		<0.5		<0.5
L-87-5	1.2	0.91	NS (dry)	3.3		
L-87-7				<0.5		<0.5
L-87-8	1.4	0.55	<0.5J	<0.5J	<0.5J	<2.5J
L-88-10	39	16	24	12	22	13
L-88-13		0.68		1.0		1.1
LS-11	9.0	10		5.9		6.7
B-Street		<0.5		<0.5		<0.5
Rainbow				NS[4]		1.2

Notes:

J - Detectable but less than the practical quantification limit.

NS[1] - Well 89-4 had been vandalized and could not be sampled in November 1997.

NS[2] - Well 92-1 was mistakenly not sampled during November 1997

NS[3] - Wells 92-2, 94-1, and 94-2 were not accessible for sampling during May 1997 due to flooding of the Yellowstone River.

NS[4] - The Rainbow Motel well was not operational during May 1997.

Table 5.0

November 1997 and May 1998 Natural Attenuation Parameter Results 1998 Annual Ground Water Report

Well Location	Sample Round	DO (mg/l)	SO_4 (mg/l)	NO_3 (mg/l)	Fe^{+2} (mg/l)	CH_4 (ppm)
	Wells in/Near Plume					
L-87-2	May 1998	2.2	18	<0.05	1.4	2930
L-87-2	Nov. 1997	NM	21	<0.05	1.3	7530
L-87-4	May 1998	3.4	41	0.73	<0.1	6
L-87-4	Nov. 1997	5.8	39	0.75	<0.1	67
L-87-7	May 1998	2.1	19	<0.05	0.3	2930
L-87-7	Nov. 1997	2.5	16	<0.05	0.2	1471
L-87-8	May 1998	3.6	40	0.24	NA	481
L-87-8	Nov. 1997	NM	30	0.21	2.3	894
L-88-10	May 1998	1.7	55	0.26	<0.1	6
L-88-10	Nov. 1997	0.9	65	0.07	<0.1	48
L-88-13	May 1998	0.8	46	0.67	<0.1	3
L-88-13	Nov. 1997	1.0	49	0.55	<0.1	12
95-1	Nov. 1997	NM	49	1.44	<0.1	19
	Wells Away From Plume					
L-87-1	Nov. 1997	6.7	7	0.42	<0.1	4
L-87-3	May 1998	4.9	119	2.77	<0.1	2
L-87-3	Nov. 1997	2.6	6	2.08	<0.1	3
89-2	May 1998	5.2	65	0.87	<0.1	4
89-2	Nov. 1997	6.5	9	0.44	<0.1	3
92.3	May 1998	9.3	39	0.75	NA	3
92-3	Nov. 1997	NM	NM	0.89	<0.1	4
2	May 1998	4.8	44	1.48	<0.1	3
2	Nov. 1997	NM	64	6.81	<0.1	6

Notes:
NM - Not Measured
NA - Not Applicable

FIGURES

Table 6.0

February 1995 Through May 1998
Apparent Free-Product Thickness Measurements
1998 Annual Ground Water Report

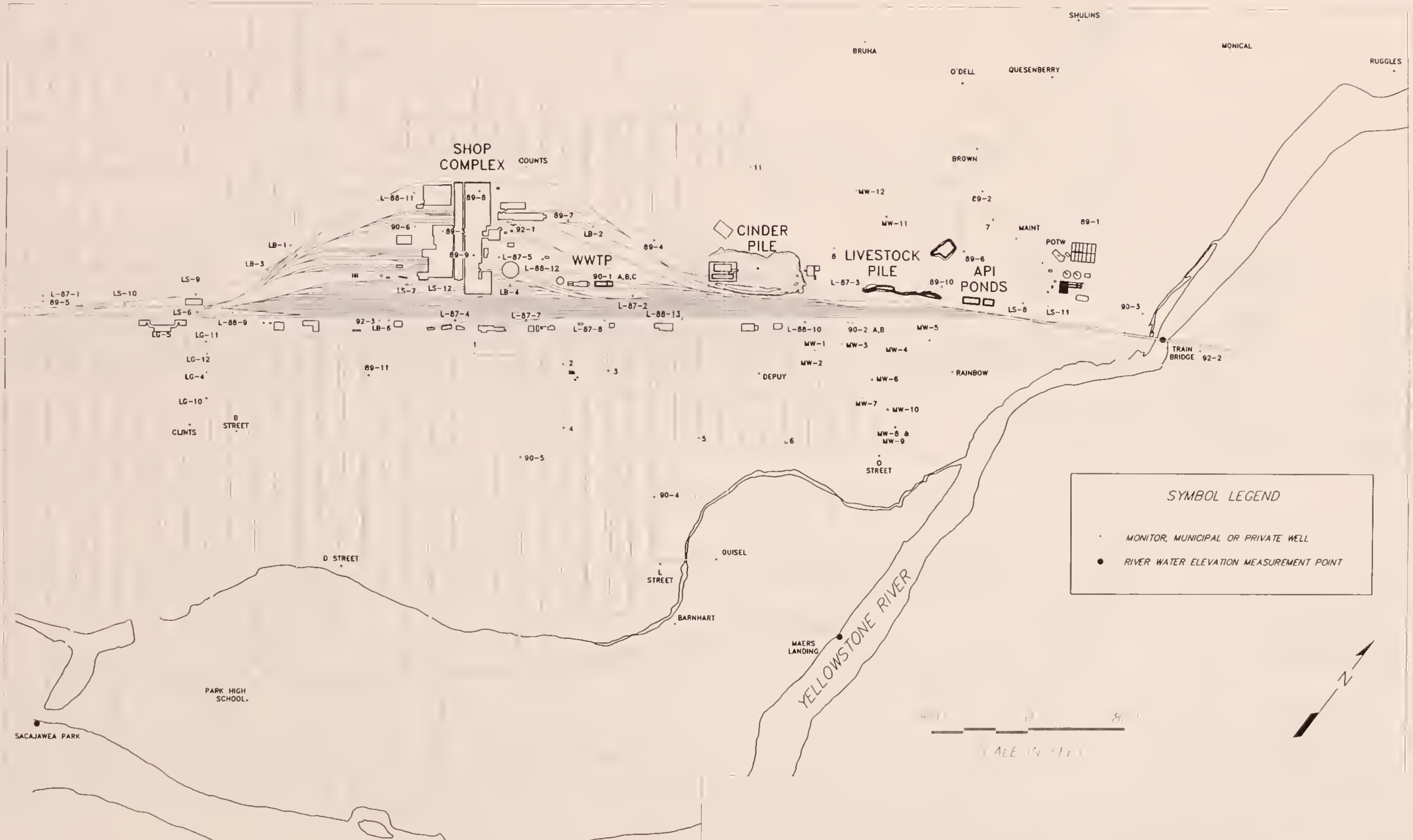
Well	Feb-95	May-95	Aug-95	Nov-95	May-96	Nov-96	May-97	Nov-97	May-98	Avg.
LB-4	0.12	0.45	0.65				0.66	**0.42**	**0.28**	**0.43**
L-87-2	ND	ND	ND	ND	ND	ND	ND	**ND**	**ND**	**N/A**
L-87-4	ND	ND	0.19	0.1		0.39	0.98	**0.68**	**0.11**	**0.41**
L-87-7	0.78	0.24	0.65	0.7	0.24	0.46	0.9	**0.48**	**0.33**	**0.53**
L-87-8	1.35	0.12	0.31	0.27	0.11	0.4	0.24	**0.23**		**0.38**
HRO-4								**0.41**		**0.41**
HRO-6	0.63	0.36	0.52		0.65	0.74	0.43	**0.7**	**0.37**	**0.55**
HRO-7							0.58	**0.61**	**0.27**	**N/A**
HRO-8			ND					**Dry**		**N/A**
HRO-9	0.06				0.03		0.04	**0.05**	**0.03**	**0.04**
HRO-10	<0.01		<0.01		ND			**<0.01**		**N/A**
HRO-11		0.23	ND							**0.23**
HRO-12	<0.01	ND	ND		ND					**N/A**
HRO-13	ND	ND	ND		ND					**N/A**
HRO-14	ND	<0.01			ND					**N/A**
HRO-15	0.07	<0.01								**0.07**
HRO-16	0.5	0.04								**0.27**
HRO-20	0.13	ND	0.06	0.16	0.03		ND	**0.15**		**0.11**
HRO-21	<0.01	ND	ND	<0.01	ND		<0.01			**N/A**
HRO-22	ND	<0.01	ND	0.01	ND		0.01	**0.06**		**0.03**
HRO-23	ND	ND	ND		ND		ND	**ND**		**N/A**
HRO-24	0.14	0.01	0.14	0.24	ND		0.03	**0.17**		**0.12**
RW-1	ND	0.01			ND		ND			**0.01**
RW-2	ND	<0.01			ND		ND			**N/A**
RW-3	0.03	<0.01					0.15			**0.09**
RW-4	ND	0.16			0.4		0.34			**0.30**
RW-5	0.07	0.24								**0.16**
RW-6	0.14*	0.22*			0.13		0.36			**0.25**
RW-7	0.4	0.04	0.19	0.25	ND	0.26	0.06	**0.2**	**0.13**	**0.19**
RW-8	0.02	0.03	0.15	0.17			0.04			**0.08**
RW-9	ND	ND	ND	0.01	ND	ND	ND	**ND**	**ND**	**0.01**
LG-11					ND					**N/A**
LG-12					ND					**N/A**
95-1					ND	ND	ND			**N/A**
LPZ-100	0.04							**0.17**		**0.11**

Notes:

ND - No product detected

<0.01 - Trace of product detected but less than resolution of product probe

* - Approximately 35 gallons of product recovered from Well RW-6 during December 1994



THE BURLINGTON NORTHERN &
SANTA FE RAILWAY COMPANY

ENVIROCON, INC.

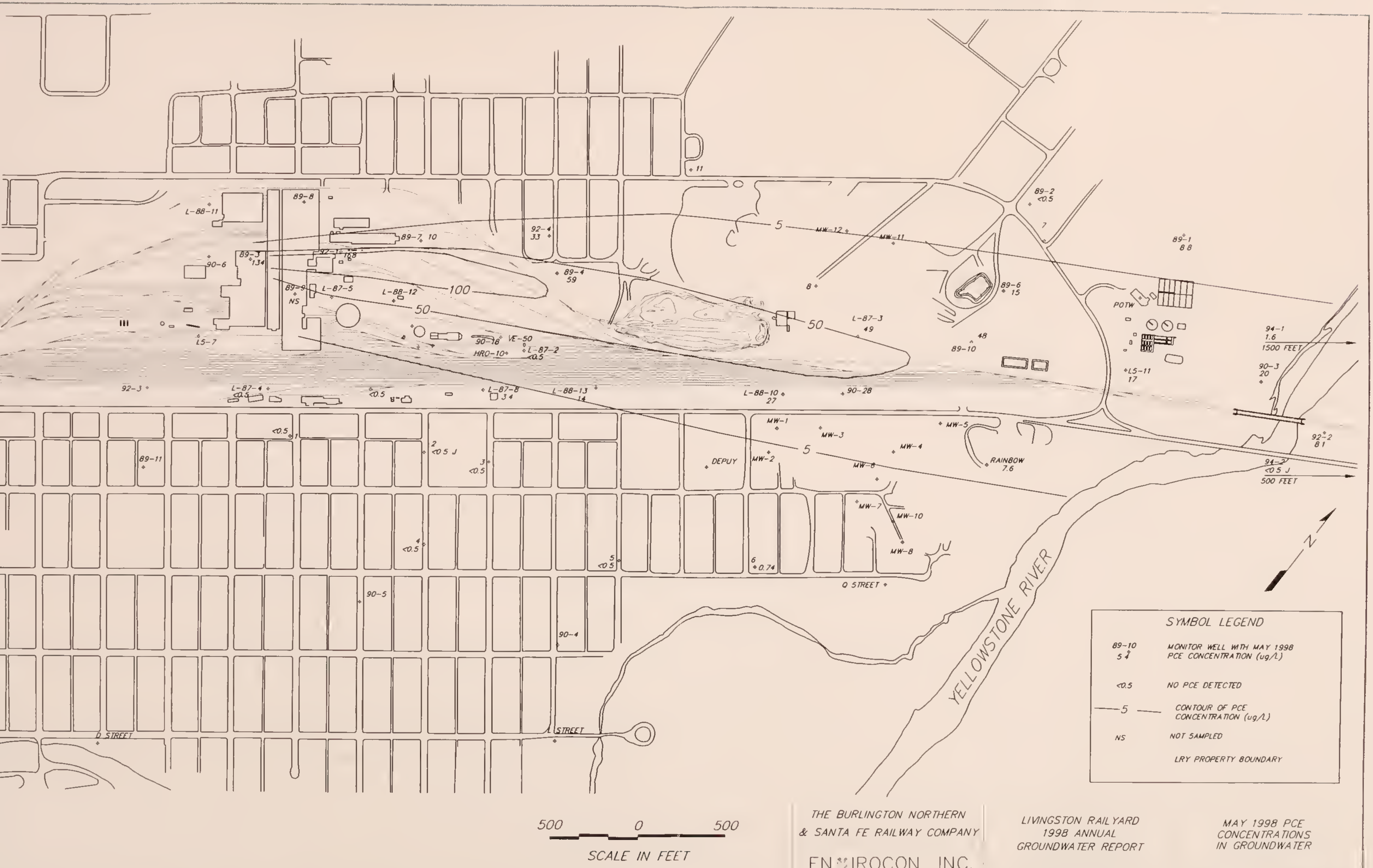
LIVINGSTON RAILYARD
1998 ANNUAL
GROUND WATER REPORT

140101

GROUND WATER SAMPLING
AND WATER LEVEL
MEASUREMENT LOCATIONS

8/3/1998

FIGURE 1.0



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& SANTA FE RAILWAY COMPANY

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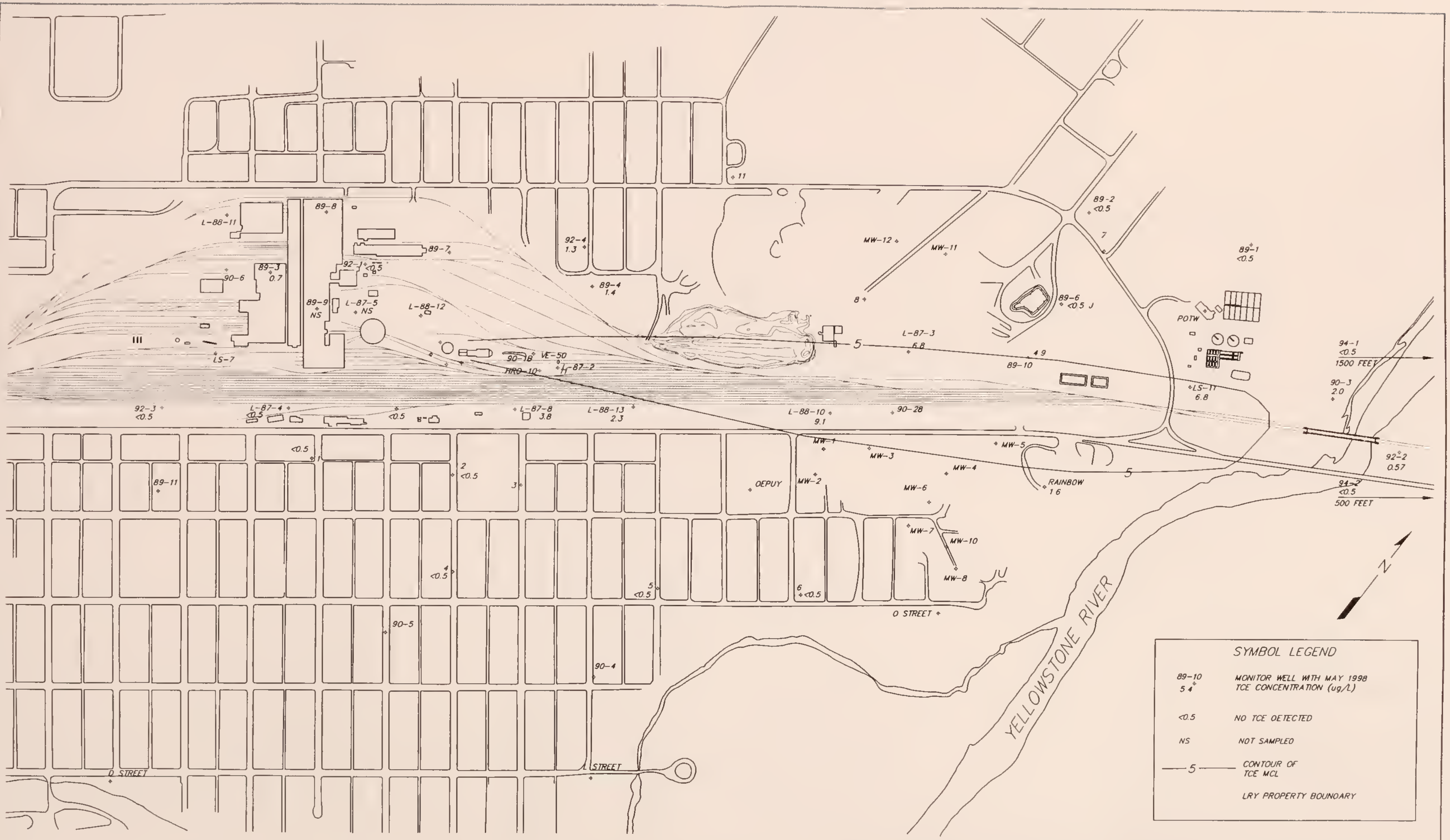
LIVINGSTON RAILYARD
1998 ANNUAL
GROUNDWATER REPORT

JOB # 140101.R02

MAY 1998 PCE
CONCENTRATIONS
IN GROUNDWATER

7/29/98

FIGURE 2.0



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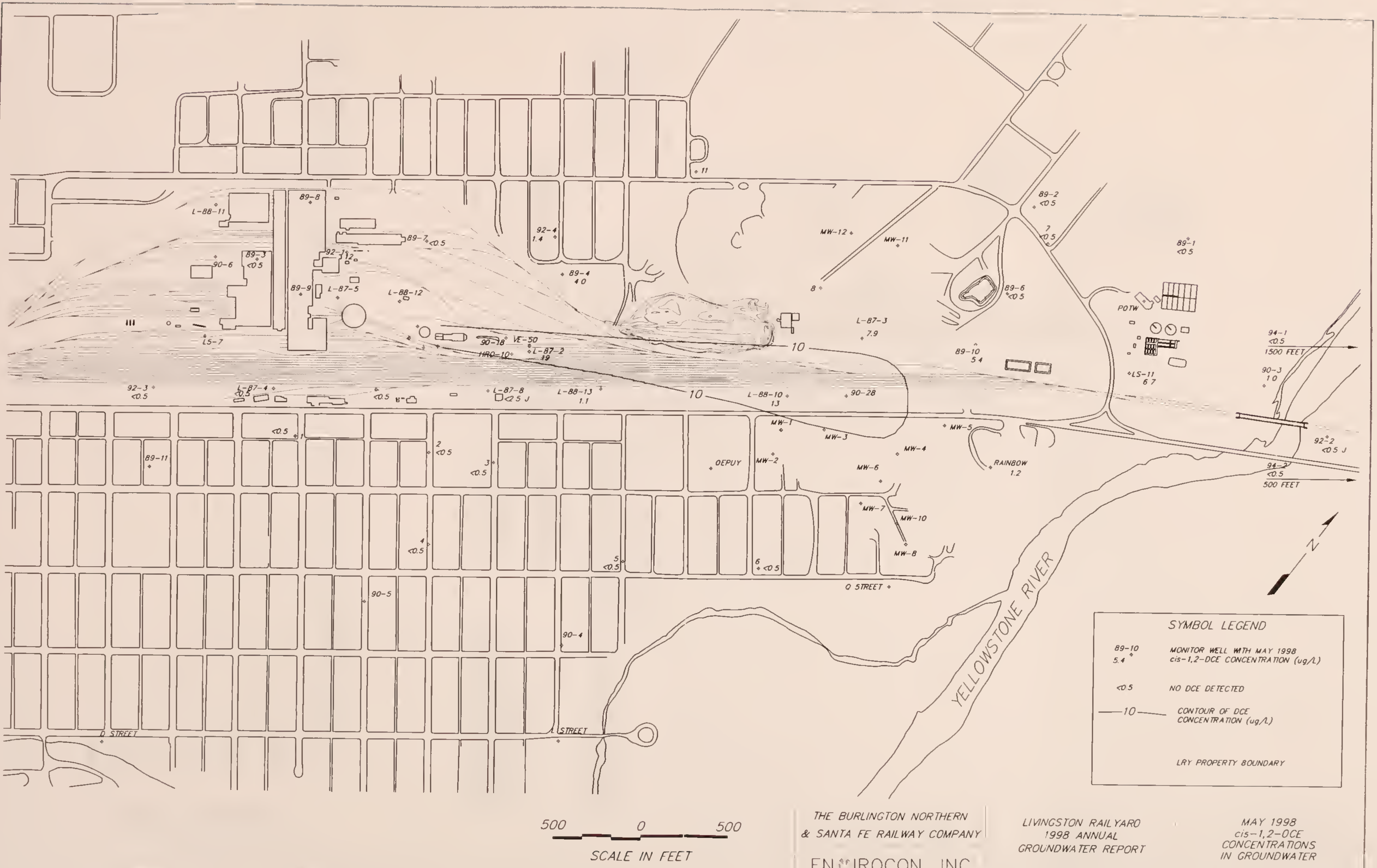
LIVINGSTON RAILYARD
1998 ANNUAL
GROUNDWATER REPORT

JOB # 140101.R02

MAY 1998 TCE
CONCENTRATIONS
IN GROUNDWATER

7/29/98 FIGURE 3.0



THE BURLINGTON NORTHERN
& SANTA FE RAILWAY COMPANY

ENVIROCON, INC.

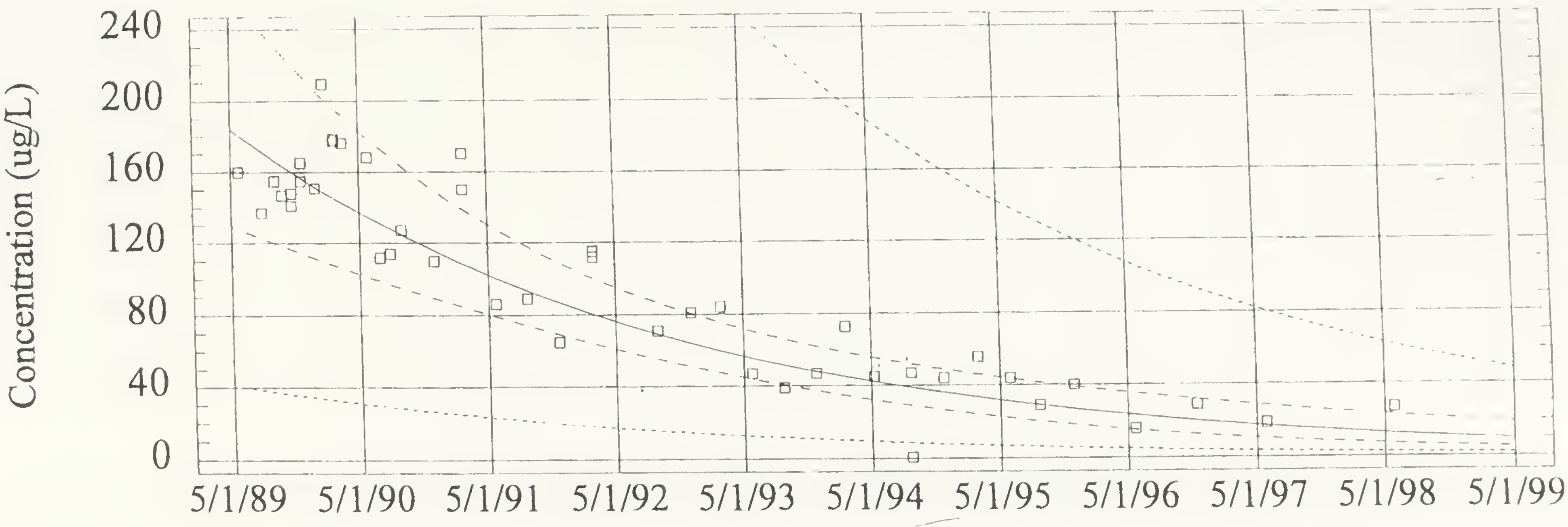
LIVINGSTON RAILYARD
1998 ANNUAL
GROUNDWATER REPORT

JOB # 140101.R02

MAY 1998
cis-1,2-DCE
CONCENTRATIONS
IN GROUNDWATER

7/29/98

FIGURE 4.0



EXPONENTIAL REGRESSION LINE WITH
95% CONFIDENCE INTERVAL ENVELOPE
AVERAGE SLOPE IN ug/L/YEAR = 16.20
% DECLINE OBSERVED = 93.0%
CORRELATION COEFFICIENT = -0.72

Solid line is the estimate of the mean concentration over time, statisically derived from the data collected to date.

Outer pair of fine dotted lines delineates the envelope containing all statistically inferred data points with 95% confidence.

Inner pair of coarse dotted lines delineates the envelope containing the means of the data points at each point in time with a 95% degree of statistical confidence. I.E. the solid line described above could vary anywhere within this inner envelope of 95% confidence. To be 100% confident that the envelope contains the mean points, the envelope would have to be even wider.

ESTIMATED TIME FRAME FOR
COMPLIANCE WITH MCL LEVELS
BETWEEN YEARS 1998 - 2008

THE BURLINGTON NORTHERN &
SANTA FE RAILWAY COMPANY

ENVIROCON, INC.

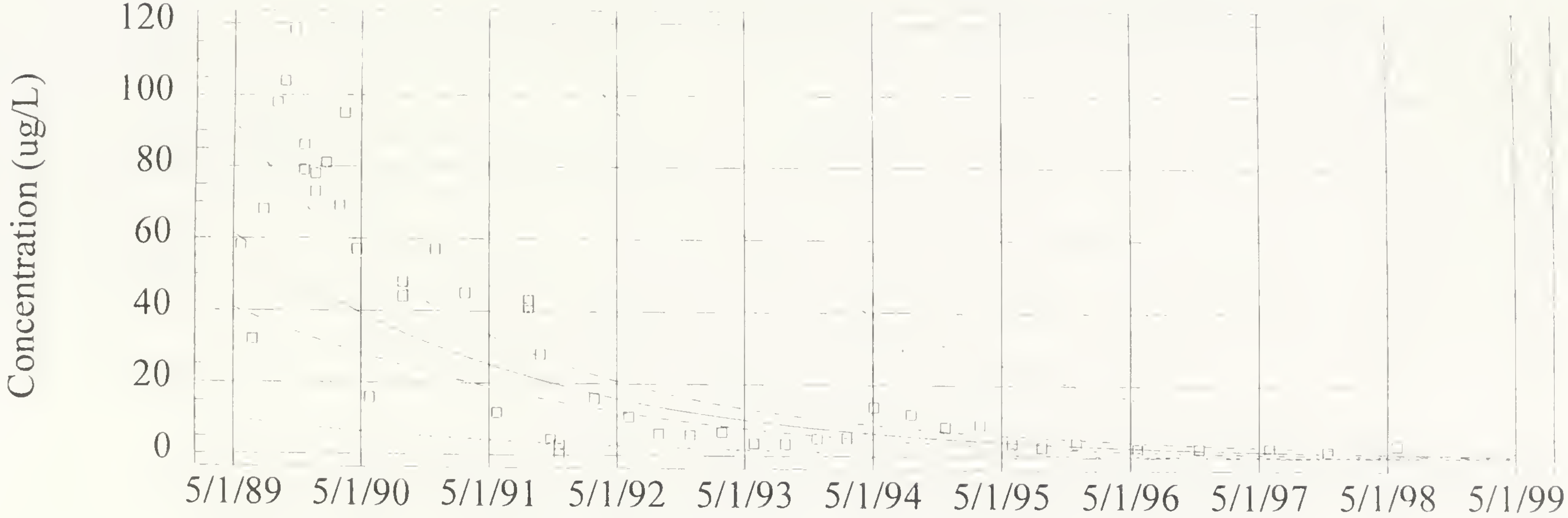
LIVINGSTON RAIL YARD
1998 ANNUAL
GROUNDWATER REPORT

AutoCad FILE: PCEL8810.DWG

TETRACHLOROETHENE
CONCENTRATIONS
FOR WELL L-88-10

8/4/98

FIGURE 5.0



EXPONENTIAL REGRESSION LINE WITH
95% CONFIDENCE INTERVAL ENVELOPE
AVERAGE SLOPE IN ug/L/YEAR = 6.10
% DECLINE OBSERVED = 98.39
CORRELATION COEFFICIENT = -0.78

Solid line is the estimate of the mean concentration over time, statisically derived from the data collected to date.

Outer pair of fine dotted lines delineates the envelope containing all statistically inferred data points with 95% confidence.

Inner pair of coarse dotted lines delineates the envelope containing the means of the data points at each point in time with a 95% degree of statistical confidence. I.E. the solid line described above could vary anywhere within this inner envelope of 95% confidence. To be 100% confident that the envelope contains the mean points, the envelope would have to be even wider.

ESTIMATED TIME FRAME FOR
COMPLIANCE WITH MCL LEVELS
BETWEEN YEARS 1993 - 1995

THE BURLINGTON NORTHERN &
SANTA FE RAILWAY COMPANY

ENVIROCON, INC.

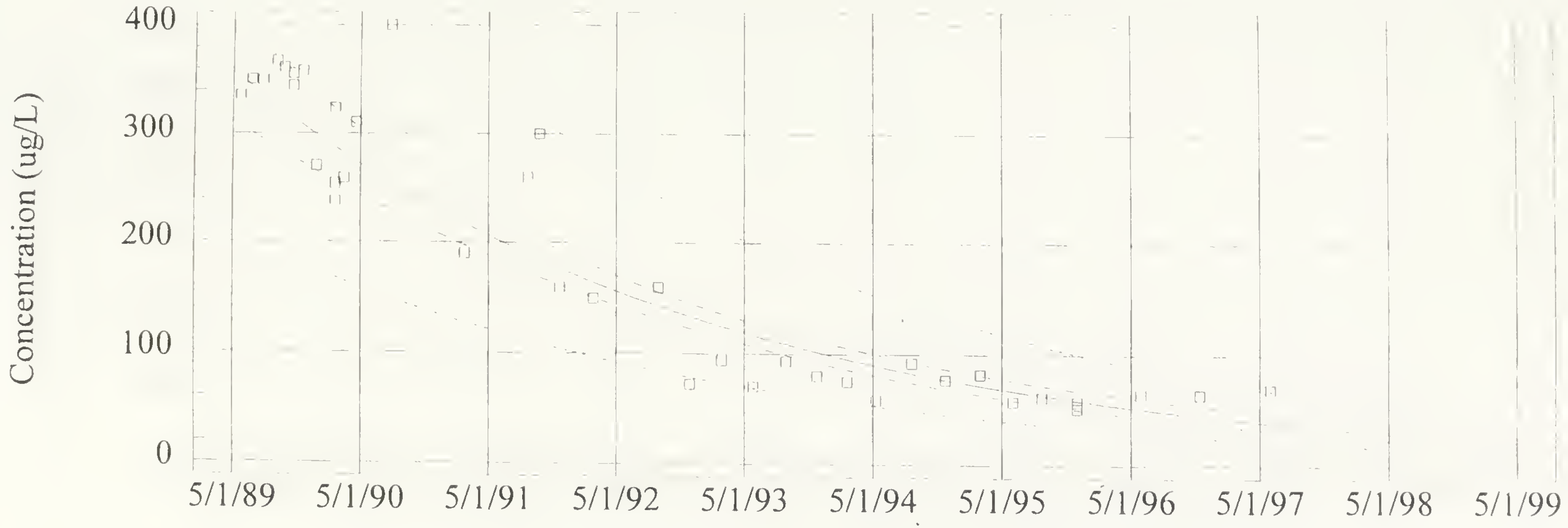
LIVINGSTON RAIL YARD
1998 ANNUAL
GROUNDWATER REPORT

TETRACHLOROETHENE
CONCENTRATIONS
FOR WELL L-87-8

AutoCad FILE: PCEL878.DWG

8/4/98

FIGURE 6.0



EXPONENTIAL REGRESSION LINE WITH
95% CONFIDENCE INTERVAL ENVELOPE
AVERAGE SLOPE IN ug/L/YEAR = 33.80
% DECLINE OBSERVED = 93.89%
CORRELATION COEFFICIENT = -0.94

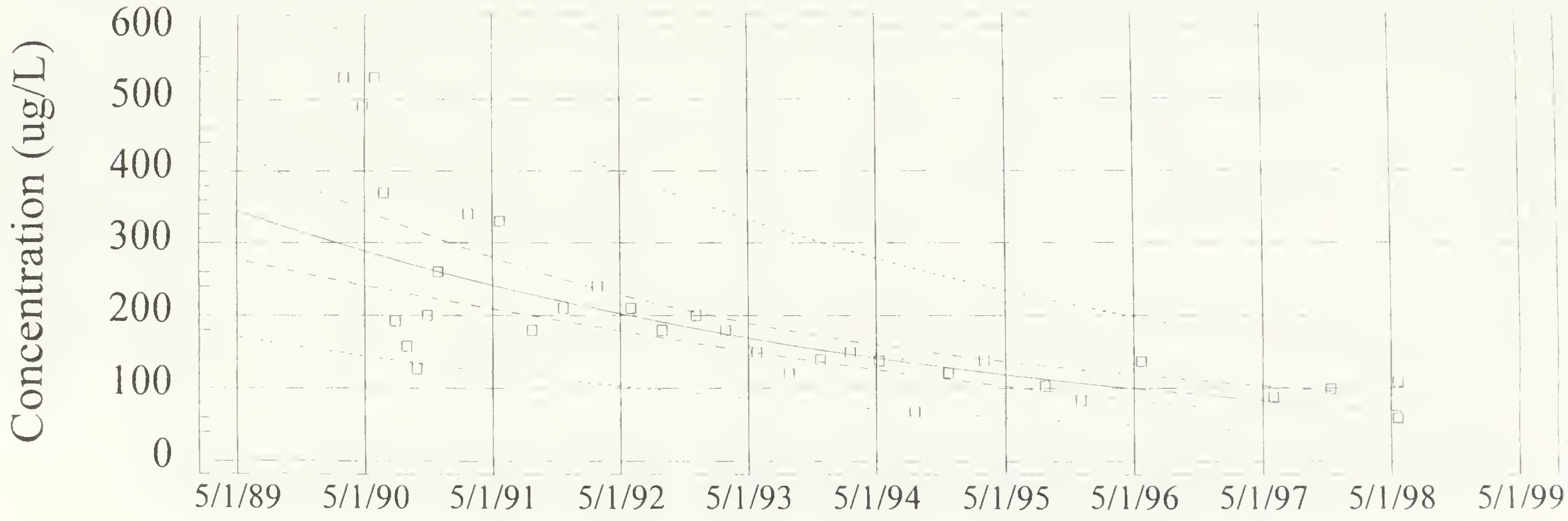
Solid line is the estimate of the meon concentrotion over time, statisically derived from the data collected to date.

Outer pair of fine dotted lines delineotes the envelope containing all statistically inferred data points with 95% confidence.

Inner pair of coarse dotted lines delineates the envelope containing the means of the data points at each point in time with a 95% degree of statistical confidence. I.E. the solid line described above could vary anywhere within this inner envelope of 95% confidence. To be 100% confident that the envelope contains the meon points, the envelope would have to be even wider.

ESTIMATED TIME FRAME FOR
COMPLIANCE WITH MCL LEVELS
BETWEEN YEARS 2001 - 2005

THE BURLINGTON NORTHERN & SANTA FE RAILWAY COMPANY	LIVINGSTON RAIL YARD 1998 ANNUAL GROUNDWATER REPORT	TETRACHLOROETHENE CONCENTRATIONS FOR WELL L-87-5
ENVIROCON, INC.	AutoCad FILE: PCEL875.DWG	8/4/98 — FIGURE 7.0



EXPONENTIAL REGRESSION LINE WITH
95% CONFIDENCE INTERVAL ENVELOPE
AVERAGE SLOPE IN ug/L/YEAR = 37.50
% DECLINE OBSERVED = 94.94%
CORRELATION COEFFICIENT = -0.49

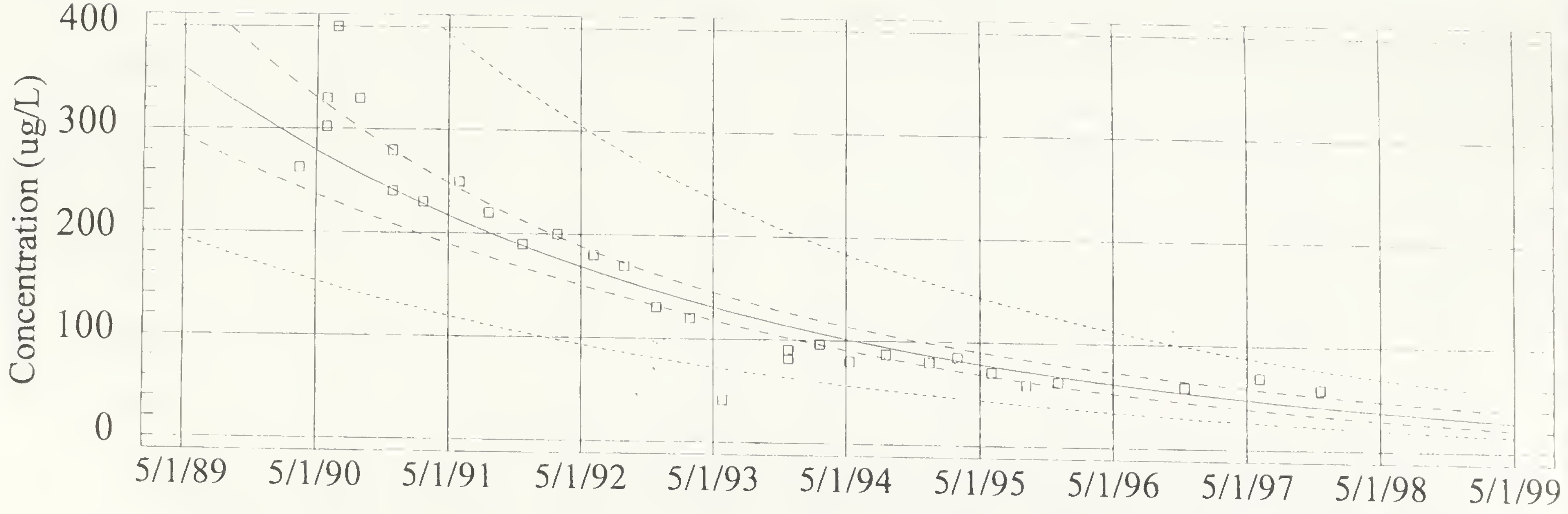
Solid line is the estimate of the mean concentration over time, statisically derived from the data collected to date.

Outer pair of fine dotted lines delineates the envelope containing all statistically inferred data points with 95% confidence.

Inner pair of coarse dotted lines delineates the envelope containing the means of the data points at each point in time with a 95% degree of statistical confidence. I.E. the solid line described above could vary anywhere within this inner envelope of 95% confidence. To be 100% confident that the envelope contains the mean points, the envelope would have to be even wider.

ESTIMATED TIME FRAME FOR
COMPLIANCE WITH MCL LEVELS
AFTER YEAR 2007

THE BURLINGTON NORTHERN & SANTA FE RAILWAY COMPANY	*LIVINGSTON RAIL YARD* *1998 ANNUAL* *GROUNDWATER REPORT*	*TETRACHLOROETHENE* *CONCENTRATIONS* *FOR WELL 89-4*
ENVIROCON, INC.	*AutoCad FILE: PCE894.DWG*	*8/4/98* — *FIGURE 8.0*



EXPONENTIAL REGRESSION LINE WITH
95% CONFIDENCE INTERVAL ENVELOPE
AVERAGE SLOPE IN ug/L/YEAR = 34.00
% DECLINE OBSERVED = 94.4%
CORRELATION COEFFICIENT = -0.90

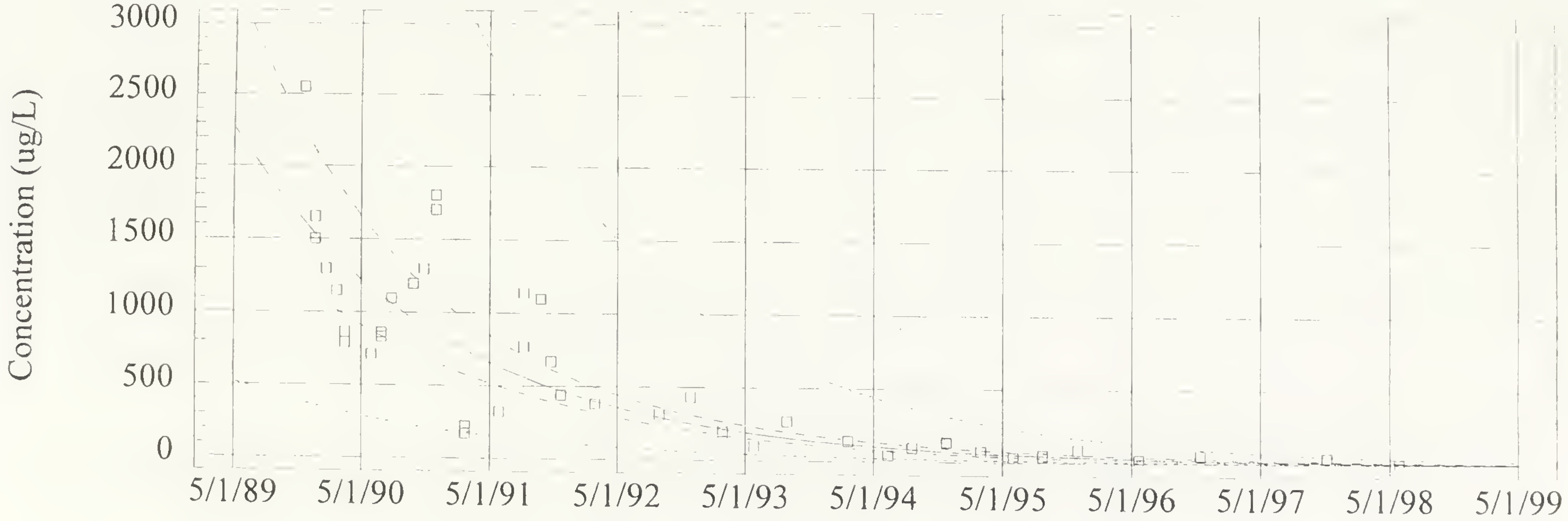
ESTIMATED TIME FRAME FOR
COMPLIANCE WITH MCL LEVELS
AFTER YEAR 2004

Solid line is the estimate of the mean concentration over time, statisically derived from the data collected to date.

Outer pair of fine dotted lines delineates the envelope containing all statistically inferred data points with 95% confidence.

Inner pair of coarse dotted lines delineates the envelope containing the means of the data points at each point in time with a 95% degree of statistical confidence. I.E. the solid line described above could vary anywhere within this inner envelope of 95% confidence. To be 100% confident that the envelope contains the mean points, the envelope would have to be even wider.

THE BURLINGTON NORTHERN & SANTA FE RAILWAY COMPANY	*LIVINGSTON RAIL YARD 1998 ANNUAL GROUNDWATER REPORT*	*TETRACHLOROETHENE CONCENTRATIONS FOR WELL 89-9*
ENVIROCON, INC.	*AutoCad FILE: PCE899.DWG*	*8/4/98* *FIGURE 9.0*



EXPONENTIAL REGRESSION LINE WITH
95% CONFIDENCE INTERVAL ENVELOPE
AVERAGE SLOPE IN ug/L/YEAR = 22.7
% DECLINE OBSERVED = 100.0%
CORRELATION COEFFICIENT = -0.90

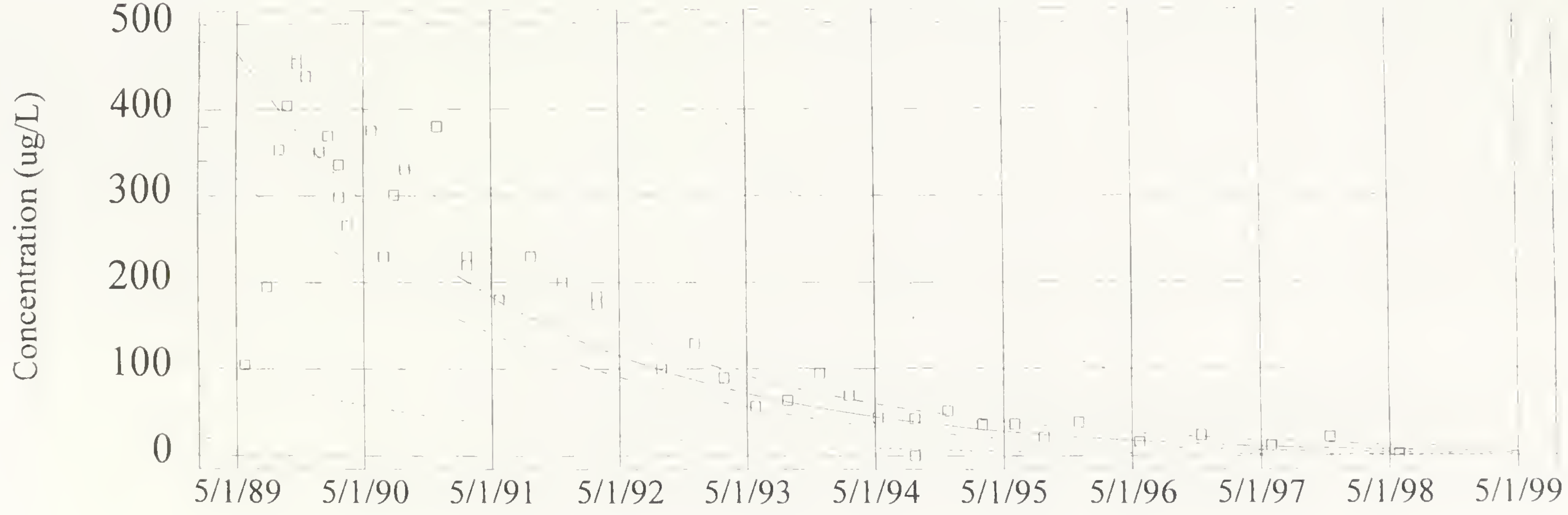
ESTIMATED TIME FRAME FOR
COMPLIANCE WITH MCL LEVELS
BETWEEN YEARS 1995 - 1996

Salid line is the estimate of the mean cancentratian aver time, statisically derived from the data collected to date.

Outer pair af fine dotted lines delineates the envelape cantalning all statistically inferred data points with 95% canfidence.

Inner pair of coarse dotted lines delineates the envelape containing the means of the data points at each paint in time with a 95% degree of statisticol confidence. I.E. the salid line described abave could vary anywhere within this inner envelape of 95% canfidence. To be 100% canfident that the envelape cantains the mean palnts, the envelape wauld have to be even wider.

THE BURLINGTON NORTHERN & SANTA FE RAILWAY COMPANY	LIVINGSTON RAIL YARD 1998 ANNUAL GROUNDWATER REPORT	cis-1,2 DICHLOROETHENE CONCENTRATIONS FOR WELL L-87-2
ENVIROCON, INC.	AutoCad FILE: DCEL872.DWG	8/4/98
		FIGURE 10.0



EXPONENTIAL REGRESSION LINE WITH
95% CONFIDENCE INTERVAL ENVELOPE
AVERAGE SLOPE IN ug/L/YEAR = 46.30
% DECLINE OBSERVED = 98.51%
CORRELATION COEFFICIENT = -0.84

Solid line is the estimate of the mean concentration over time, statisically derived from the data collected to date.

Outer pair of fine dotted lines delineates the envelope containing all statistically inferred data points with 95% confidence.

Inner pair of coarse dotted lines delineates the envelope containing the means of the data points at each point in time with a 95% degree of statistical confidence. I.E. the solid line described above could vary anywhere within this inner envelope of 95% confidence. To be 100% confident that the envelope contains the mean points, the envelope would have to be even wider.

ESTIMATED TIME FRAME FOR
COMPLIANCE WITH MCL LEVELS
BETWEEN YEARS 1992 - 1994

THE BURLINGTON NORTHERN &
SANTA FE RAILWAY COMPANY

ENVIROCON, INC.

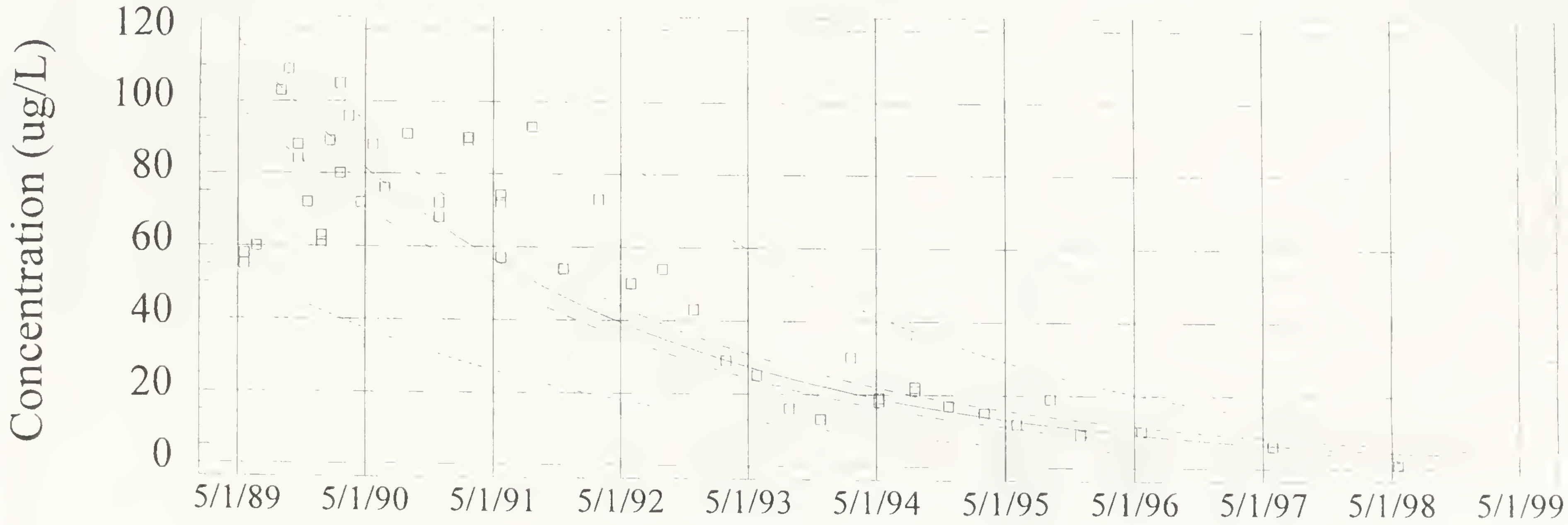
LIVINGSTON RAIL YARD
1998 ANNUAL
GROUNDWATER REPORT

cis-1,2 DICHLOROETHENE
CONCENTRATIONS
FOR WELL L-88-10

AutoCad FILE: DCEL8810.DWG

8/4/98

FIGURE 11.0



EXPONENTIAL REGRESSION LINE WITH
95% CONFIDENCE INTERVAL ENVELOPE
AVERAGE SLOPE IN ug/L/YEAR = 11.40
% DECLINE OBSERVED = 96.61%
CORRELATION COEFFICIENT = -0.92

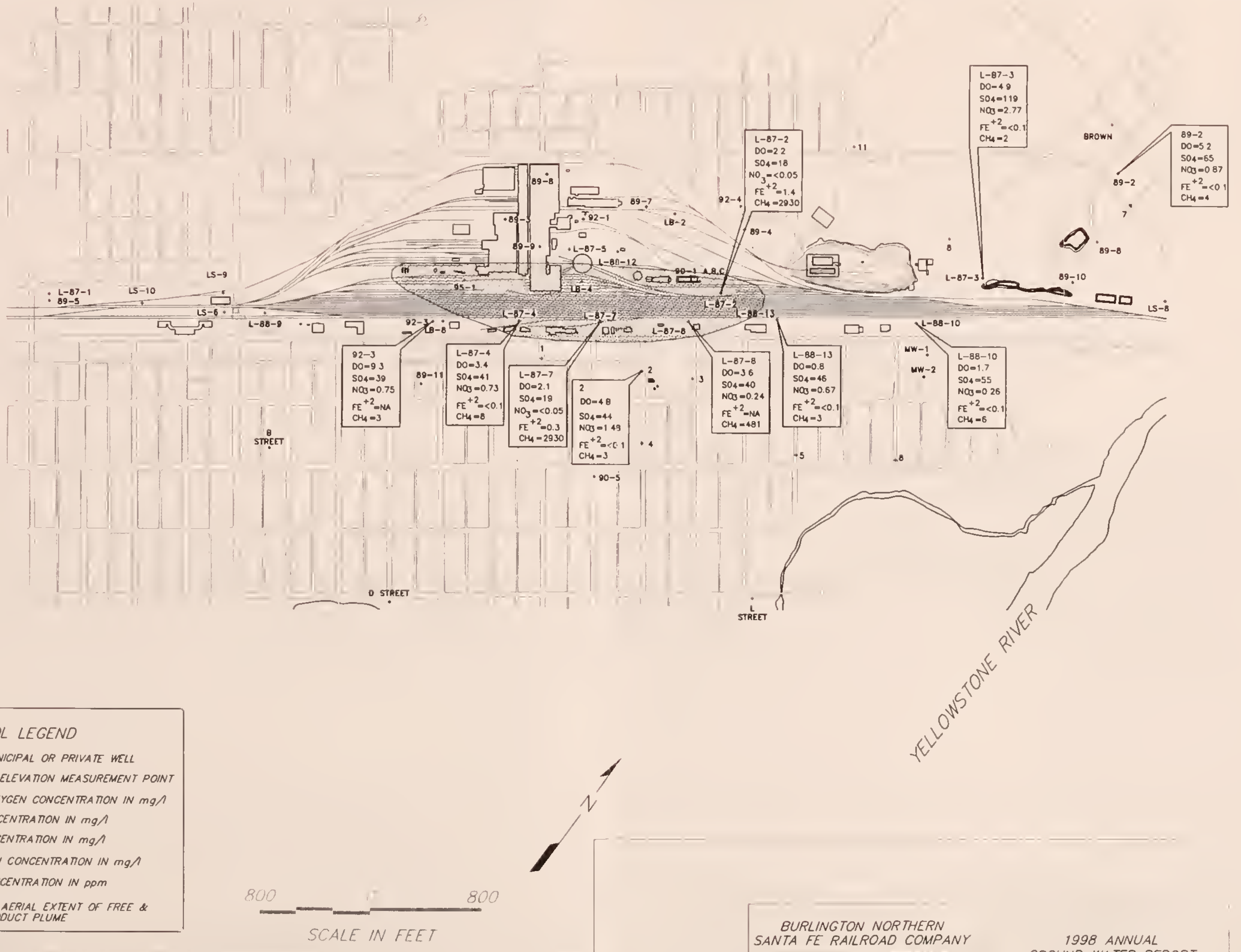
Solid line is the estimate of the mean concentration over time, statisically derived from the data collected to date.

Outer pair of fine dotted lines delineates the envelope containing all statistically inferred data points with 95% confidence.

Inner pair of coarse dotted lines delineates the envelope containing the means of the doto points at each point in time with a 95% degree of statistical confidence. I.E. the solid line described above could vary anywhere within this inner envelope of 95% confidence. To be 100% confident that the envelope contains the mean points, the envelope would have to be even wider.

ESTIMATED TIME FRAME FOR
COMPLIANCE WITH MCL LEVELS
BETWEEN YEARS 1990 - 1991

THE BURLINGTON NORTHERN & SANTA FE RAILWAY COMPANY	LIVINGSTON RAIL YARD 1998 ANNUAL GROUNDWATER REPORT	cis−1,2 DICHLOROETHENE CONCENTRATIONS FOR WELL LS−11
ENVIROCON, INC.	AutoCad FILE: DCELS11.DWG	8/4/98
		FIGURE 12.0



SYMBOL LEGEND

·	MONITOR, MUNICIPAL OR PRIVATE WELL
●	RIVER WATER ELEVATION MEASUREMENT POINT
DO=8.2	DISSOLVED OXYGEN CONCENTRATION IN mg/l
SO_4=42	SULFATE CONCENTRATION IN mg/l
NO_3=1.02	NITRATE CONCENTRATION IN mg/l
FE^{+2}=<0.1	FERROUS IRON CONCENTRATION IN mg/l
CH_4=2	METHANE CONCENTRATION IN ppm
▭	APPROXIMATE AERIAL EXTENT OF FREE & RESIDUAL PRODUCT PLUME

BURLINGTON NORTHERN
SANTA FE RAILROAD COMPANY

ENVIROCON, INC.

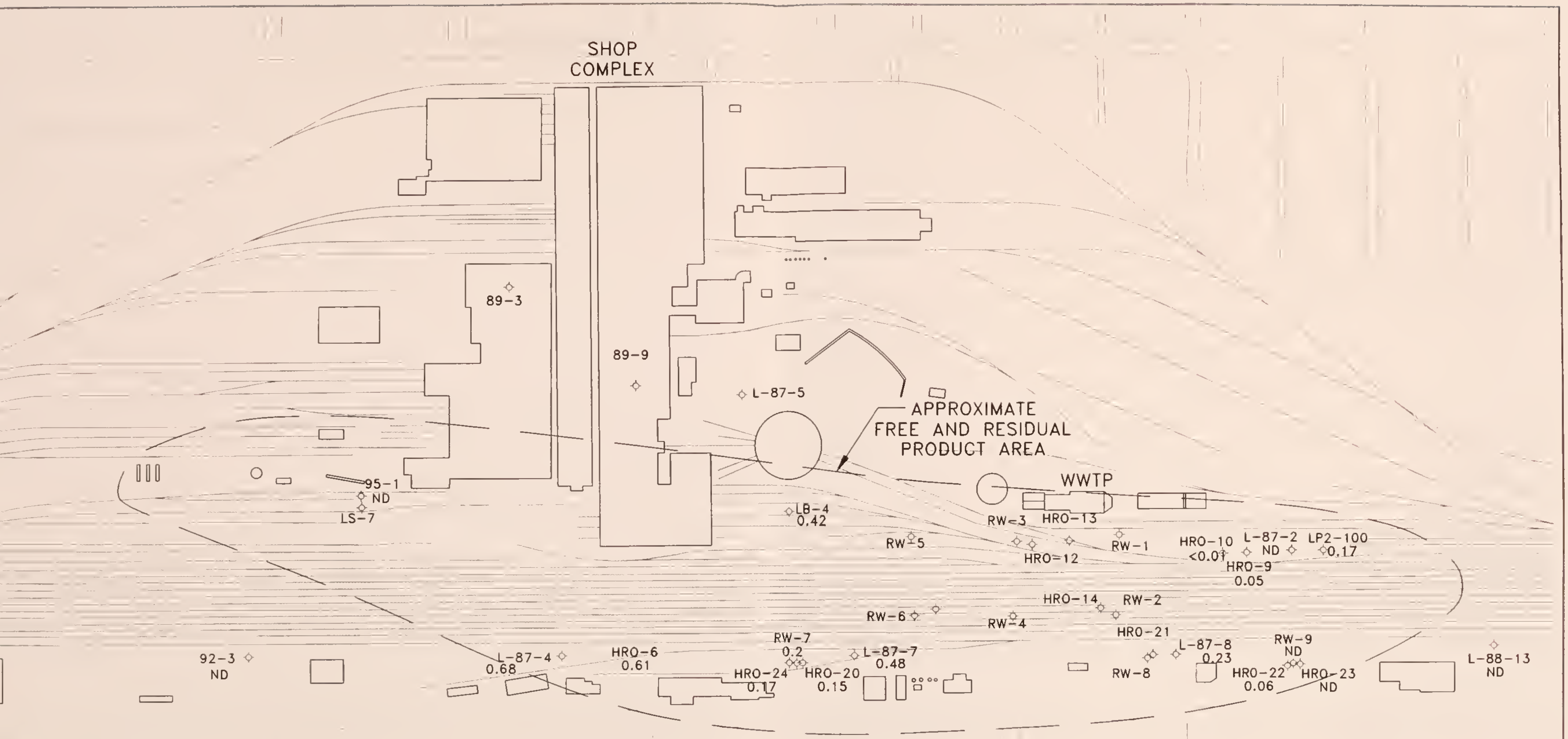
1998 ANNUAL
GROUND WATER REPORT

140101

NATURAL ATTENUATION
PARAMETER RESULTS

7/31/98

Figure 13.0



LEGEND:

RW-7 0.04 ◇	*MONITORING WELL LOCATION W/APPARENT FREE PRODUCT THICKNESS MEASUREMENTS*
ND	*NO PRODUCT DETECTED*
<0.01	*TRACE OF PRODUCT DETECTED BUT LESS THAN RESOLUTION OF PRODUCT PROBE*

200 0 200

SCALE IN FEET

N

THE BURLINGTON NORTHERN &
SANTA FE RAILWAY COMPANY

ENVIROCON, INC.

LIVINGSTON RAILYARD
1998 ANNUAL
GROUND WATER REPORT

140101.F02

MAY 1998
APPARENT FREE PRODUCT
THICKNESS MEASUREMENTS

8/3/98 *FIGURE 14 0*

APPENDIX A

LABORATORY ANALYTICAL RESULTS

NOVEMBER 1997

BNSF GROUND WATER SAMPLE RESULTS

ENERGY LABORATORIES

ENERGY LABORATORIES, INC.
P.O. BOX 30916 • 1120 SOUTH 27TH STREET • BILLINGS, MT 59107-0916 • PHONE (406) 252 6325
E-MAIL eli@energylab.com • FAX (406) 252-6069 • 1-800-735-4489

November 26, 1997

Michael McKinsey
Envirocon, Inc.
P.O. Box 8243
Missoula, MT 59807

On November 14, 1997, these samples, represented by our laboratory numbers 97-70241 through 97-70245, were submitted to our laboratory for analysis.

The test results and quality assurance were reviewed and approved by the undersigned.

Reviewed by: ______________________

ENERGY LABORATORIES, INC.
P.O. BOX 30916 • 1120 SOUTH 27TH STREET • BILLINGS, MT 59107-0916 • PHONE (406) 252-6325
E-MAIL eli@energylab.com • FAX (406) 252-6069 • 1-800-735-4489

LABORATORY REPORT

To : Envirocon, Inc.
Address : M. McKinsey
P.O. Box 8243
Missoula, MT 59807

Lab No. : 97-70241 fs
Date : 11/26/97

GENERAL INFORMATION:
Laboratory No. : 97-70241
Sample Type : WATER
Sample Point : 140101-1594 92-3
Sample Date : 11/13/97
Sample Time :
Sample Received : 11/14/97

LABORATORY DATA:

		Result	Date Analyzed
Nitrogen,Nitrate	(mg/l)	0.89	11/17/97
Ferrous Iron	(mg/l)	<0.1	11/14/97
Methane in headspace	(ppm)	4	11/17/97

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E-MAIL eli@energylab.com • FAX (406) 252-6069 • 1-800-735-4489

LABORATORY REPORT

To : Envirocon, Inc.
Address : M. McKinsey
P.O. Box 8243
Missoula, MT 59807

Lab No. : 97-70242 fs
Date : 11/26/97

GENERAL INFORMATION:

Laboratory No. : 97-70242
Sample Type : WATER
Sample Point : 140101-1595 #2
Sample Date : 11/13/97
Sample Time :
Sample Received : 11/14/97

LABORATORY DATA:

	Result	Date Analyzed
Sulfate...(mg/l)........	64	11/19/97
Nitrogen,Nitrate....................................(mg/l)........	6.81	11/17/97
Ferrous Iron..(mg/l)........	<0.1	11/14/97
Methane in headspace................................(ppm).........	6	11/17/97

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E-MAIL eli@energylab.com • FAX (406) 252-6069 • 1-800-735-4489

LABORATORY REPORT

To : Envirocon, Inc.
Address : M. McKinsey
P.O. Box 8243
Missoula, MT 59807

Lab No. : 97-70243 fs
Date : 11/26/97

GENERAL INFORMATION:
Laboratory No. : 97-70243
Sample Type : WATER
Sample Point : 140101-1596 L-87-1
Sample Date : 11/13/97
Sample Time : 1350
Sample Received : 11/14/97

LABORATORY DATA:

		Result	Date Analyzed
Sulfate	(mg/l)	7	11/19/97
Nitrogen,Nitrate	(mg/l)	0.42	11/17/97
Ferrous Iron	(mg/l)	<0.1	11/14/97
Methane in headspace	(ppm)	4	11/17/97

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LABORATORY REPORT

To : Envirocon, Inc.
Address : M. McKinsey
P.O. Box 8243
Missoula, MT 59807

Lab No. : 97-70244 fs
Date : 11/26/97

GENERAL INFORMATION:

Laboratory No. : 97-70244
Sample Type : WATER
Sample Point : 140101-1597 L-87-3
Sample Date : 11/13/97
Sample Time : 1450
Sample Received : 11/14/97

LABORATORY DATA:

	Result	Date Analyzed
Sulfate....................(mg/l)........	6	11/19/97
Nitrogen,Nitrate....................(mg/l)........	2.08	11/17/97
Ferrous Iron....................(mg/l)........	<0.1	11/14/97
Methane in headspace....................(ppm).........	3	11/17/97

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E-MAIL eli@energylab.com • FAX (406) 252-6069 • 1-800-735-4489

LABORATORY REPORT

To : Envirocon, Inc.
Address : M. McKinsey
P.O. Box 8243
Missoula, MT 59807

Lab No. : 97-70245 fs
Date : 11/26/97

GENERAL INFORMATION:

Laboratory No. : 97-70245
Sample Type : WATER
Sample Point : 140101-1598
Sample Date : 11/13/97
Sample Time : 1510
Sample Received : 11/14/97

89-2

LABORATORY DATA:

	Result	Date Analyzed
Sulfate..(mg/l)........	9	11/19/97
Nitrogen,Nitrate...............................(mg/l)........	0.44	11/17/97
Ferrous Iron...................................(mg/l)........	<0.1	11/14/97
Methane in headspace...........................(ppm).........	3	11/17/97

Lab No(s). 97-70241 - 97-70245

QUALITY ASSURANCE DATA PACKAGE

This report includes the results of quality assurance tests performed with the sample analyses. They are performed to determine if the methodology is in control and to monitor the laboratory's ability to produce accurate and precise results.

	Duplicate Analysis --- mg/l (ppm) ---		Spiked Analysis	Blank	------ Reference ------		
nstituents	Original	Duplicate	% Recovery	Analysis, mg/l ppm	Sample Analysis, mg/l ppm	Accept Range mg/l ppm	Date Analyzed
lfate	50	50	103	<1	126	112-138	19-NOV-97
trate as N	2.08	2.08	80	<0.05	2.18	2.04-2.56	17-NOV-97
trate plus Nitrite as N	2.08	2.08	80	<0.05	2.18	2.04-2.56	17-NOV-97
her Metal Analysis							
on +2	<0.1	<0.1	98	<0.1	2.0	1.8 - 2.2	14-NOV-97

Lab Nos.: 97-70241 - 97-70245
Date: 14-NOV-97
Received by: Pam Fink
Logged In by: Pam Fink

SAMPLE CONDITION QA/QC REPORT

This report provides information about the condition of the sample(s) and associated sample custody information on receipt at the laboratory.

Chain of Custody Form Completed & Signed	Yes	Comments:
Chain of Custody Seal	Yes	Comments:
Intact	Yes	Comments:
Signature Match Chain of Custody vs. Seal	Yes	Comments:
Samples Received Cold	Yes	Comments:
Samples Received Within Holding Time	Yes	Comments:
Samples Received in Proper Containers	Yes	Comments:
Samples Received Properly Preserved	N/A	Comments:

Samples requiring analysis for volatile organics are tested for proper preservation at the time of analysis. Any preservation problems encountered for these samples are noted on the analytical parameter report pages.

Client notified about sample discrepancies:

Who: By: Date/Time:

Method of Shipping: Greyhound 130 359 4171

Additional comments:

ENERGY LABORATORIES, INC
P.O. Box 30916 1120 South 27th Street
Billings, Montana 59107

toll-free 800-735-4489
voice 406-252-6325
fax 406-252-6069

CHAIN OF CUSTODY RECORD

PLEASE PRINT OR TYPE ALL INFORMATION EXCEPT SIGNATURES

P.O. # 140101

Project Name / Address: Livingston Rail Yard

Contact Name & Phone: Michael McKinsey (406) 240-1578 623-1150

Sampler's signature: Michael McKinsey

Invoice to:
Envirocon
Missoula, MT

Report to:
Envirocon
Missoula, MT

DATE	TIME	composite	grab sample	SAMPLE I.D.	number of containers	Sample Type: A W S V U O Air Water Soils/solids Vegetation Urine Other	Analysis Requested: Nitrate (not nitrite + nitrate N)	Sulfate	Methane	Ferrous Iron				Comments, Special Instructions, etc.
11/13/97				140101-1594	3	W	X		X	X				please filter and preserve the ferrous iron sample
↓				-1595	4	W	X	X	X	X				↓ ↓
	1350			-1596	4	W	X	X	X	X				
	1450			-1597	4	W	X	X	X	X				
	1510			-1598	4	W	X	X	X	X				

1. Relinquished (signature) Michael McKinsey	Date 11/13/97	Time 1545	Received by: (signature)	3 Relinquished (signature)	Date	Time	Received by (signature):
2. Relinquished (signature)	Date	Time	Received by: (signature)	4. Relinquished (signature)	Date 11/14/97	Time 0900	Received for laboratory by (signature): Pam Feik

ENERGY LABORATORIES, INC.
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December 2, 1997

Mike McKinsey
Envirocon, Inc.
P.O. Box 8243
Missoula, MT 59807

On November 13, 1997, these samples, represented by our laboratory numbers 97-70106 through 97-70117, were submitted to our laboratory for analysis.

The test results and quality assurance were reviewed and approved by the undersigned.

Reviewed by: ______________________

ENERGY LABORATORIES

ENERGY LABORATORIES, INC.

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Client: Envirocon, Inc.
Date Sampled: 10-NOV-97
Date Received: 13-NOV-97
Analysis Date: 19-NOV-1997 18:28
File: /chem/5971A.i/va111997.b/nov191201012.d
Project Info: Livingston Rail Yard
Sample Info: 140101-1582

89-4

Lab No.: 97-70106
Report Date: 11/21/97 16:37
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	**156-59-2**	**6.2**	
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene chloride	75-09-2	<0.50	U
Tetrachloroethene	**127-18-4**	**99**	**D**
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	**79-01-6**	**1.7**	
Vinyl chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Flucrotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	8.84	88	80--120
Toluene d8	10.0	9.42	94	80--120
p-Bromofluorobenzene	10.0	9.27	93	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.
D= Value was derived from a 10 times dilution.

REPORT COMMENTS: None

Analyst: ______ Reviewing Supervisor: ______

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Client: Envirocon, Inc.
Date Sampled: 10-NOV-97
Date Received: 13-NOV-97
Analysis Date: 19-NOV-1997 19:45
File: /chem/5971A.i/val11997.b/nov191401014.d
Project Info: Livingston Rail Yard
Sample Info: 140101-1583

92-2

Lab No.: 97-70107
Report Date: 11/21/97 16:37
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	**156-59-2**	**0.92**	
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene chloride	75-09-2	<0.50	U
Tetrachloroethene	**127-18-4**	**13**	
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	**79-01-6**	**1.2**	
Vinyl chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	8.89	89	80--120
Toluene d8	10.0	9.17	92	80--120
p-Bromofluorobenzene	10.0	9.30	93	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

REPORT COMMENTS: None

Analyst: ____________ Reviewing Supervisor: ____________

ENERGY LABORATORIES

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Client: Envirocon, Inc.
Date Sampled: 10-NOV-97 16:08
Date Received: 13-NOV-97
Analysis Date: 19-NOV-1997 20:59
File: /chem/5971A.i/va111997.b/nov191601016.d
Project Info: Livingston Rail Yard
Sample Info: 140101-1584

Lab No.: 97-70108
Report Date: 11/21/97 16:37
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

94-2

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	<0.50	U
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene chloride	75-09-2	<0.50	U
Tetrachloroethene	**127-18-4**	**<0.50**	**0.44J**
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	<0.50	U
Vinyl chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	8.61	86	80--120
Toluene d8	10.0	9.46	95	80--120
p-Bromofluorobenzene	10.0	9.39	94	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

J= Estimated value. Present, but less than the limit of quantitation.

REPORT COMMENTS: None

Analyst: ______ Reviewing Supervisor: MB

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E-MAIL eli@energylab.com • FAX (406) 252-6069 • 1-800-735-4489

Client: Envirocon, Inc.
Date Sampled: 11-NOV-97 12:15
Date Received: 13-NOV-97
Analysis Date: 20-NOV-1997 00:09
File: /chem/5971A.i/va111997.b/nov192101021.d
Project Info: Livingston Rail Yard
Sample Info: 140101-1585

89-3

Lab No.: 97-70109
Report Date: 11/21/97 16:38
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	<0.50	U
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene chloride	75-09-2	<0.50	U
Tetrachloroethene	**127-18-4**	**204**	**D**
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	**79-01-6**	**2.2**	
Vinyl chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	8.57	86	80--120
Toluene d8	10.0	9.15	92	80--120
p-Bromofluorobenzene	10.0	9.28	93	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:
U= Indicates compound was analyzed for but not detected.
D= Value was derived from a 100 times dilution.

REPORT COMMENTS: None

Analyst:

Reviewing Supervisor:

ENERGY LABORATORIES

ENERGY LABORATORIES, INC.
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E-MAIL eli@energylab.com • FAX (406) 252-6069 • 1 800-735-4489

Client: Envirocon, Inc.
Date Sampled: 11-NOV-97
Date Received: 13-NOV-97
Analysis Date: 20-NOV-1997 01:23
File: /chem/5971A.i/va111997.b/nov192301023.d
Project Info: Livingston Rail Yard
Sample Info: 140101-1586

92-1

Lab No.: 97-70110
Report Date: 11/21/97 16:38
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	**156-59-2**	**4.6**	
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene chloride	75-09-2	<0.50	U
Tetrachloroethene	**127-18-4**	**217**	**D**
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	**79-01-6**	**<0.50**	0.27J
Vinyl chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	8.66	87	80--120
Toluene d8	10.0	9.02	90	80--120
p-Bromofluorobenzene	10.0	9.48	95	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.
D= Value was derived from a 100 times dilution.
J= Estimated value. Present, but less than the limit of quantitation.

REPORT COMMENTS: None

Analyst:______ Reviewing Supervisor:______

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E-MAIL eli@energylab.com • FAX (406) 252-6069 • 1-800-735-4489

Client: Envirocon, Inc.
Date Sampled: 11-NOV-97
Date Received: 13-NOV-97
Analysis Date: 21-NOV-1997 14:50
File: /chem/5971A.i/val12197.b/nov210601006.d
Project Info: Livingston Rail Yard
Sample Info: 140101-1586

Lab No.: 97-70110 Duplicate
Report Date: 11/22/97 10:56
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

92-1 Lab Dupl.

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	**156-59-2**	**3.9**	
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene chloride	75-09-2	<0.50	U
Tetrachloroethene	**127-18-4**	**225**	**D**
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	**79-01-6**	**<0.50**	**0.25J**
Vinyl chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	8.18	82	80--120
Toluene d8	10.0	9.10	91	80--120
p-Bromofluorobenzene	10.0	9.64	96	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.
D= Value was derived from a 100 times dilution.
J= Estimated value. Present, but less than the limit of quantitation.

REPORT COMMENTS: None

Analyst: ____________ Reviewing Supervisor: ____________

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Client: Envirocon, Inc.
Date Sampled: 11-NOV-97 15:20
Date Received: 13-NOV-97
Analysis Date: 20-NOV-1997 02:39
File: /chem/5971A.i/va111997.b/nov192501025.d
Project Info: Livingston Rail Yard
Sample Info: 140101-1587

90-3

Lab No.: 97-70111
Report Date: 11/21/97 16:38
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	**156-59-2**	**2.6**	
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene chloride	75-09-2	<0.50	U
Tetrachloroethene	**127-18-4**	**8.4**	
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	**79-01-6**	**2.0**	
Vinyl chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	8.73	87	80--120
Toluene d8	10.0	8.82	88	80--120
p-Bromofluorobenzene	10.0	9.45	94	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:
U= Indicates compound was analyzed for but not detected.

REPORT COMMENTS: None

Analyst: ______ Reviewing Supervisor: ______

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Client: Envirocon, Inc.
Date Sampled: 12-NOV-97
Date Received: 13-NOV-97
Analysis Date: 20-NOV-1997 05:10
File: /chem/5971A.i/va111997.b/nov192901029.d
Project Info: Livingston Rail Yard
Sample Info: 140101-1588

Lab No.: 97-70113
Report Date: 11/21/97 16:38
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

L-88-10

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon tetrachloride	56-23-5	<0.50	U
Chlorobenzene	**108-90-7**	**5.3**	
1,2-Dichlorobenzene	**95-50-1**	**0.67**	
1,4-Dichlorobenzene	**106-46-7**	**1.1**	
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	**156-59-2**	**22**	**D**
trans-1,2-Dichloroethene	**156-60-5**	**<0.50**	**0.38J**
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene chloride	75-09-2	<0.50	U
Tetrachloroethene	**127-18-4**	**28**	**D**
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	**79-01-6**	**11**	
Vinyl chloride	**75-01-4**	**1.6**	
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	**95-49-8**	**1.2**	
1,3-Dichlorobenzene	**541-73-1**	**<0.50**	**0.29J**
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	8.56	86	80--120
Toluene d8	10.0	9.01	90	80--120
p-Bromofluorobenzene	10.0	9.48	95	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:
U= Indicates compound was analyzed for but not detected.
D= Value was derived from a 10 times dilution.
J= Estimated value. Present, but less than the limit of quantitation.

REPORT COMMENTS: None

Analyst: G Reviewing Supervisor:

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Client: Envirocon, Inc.
Date Sampled: 12-NOV-97
Date Received: 13-NOV-97
Analysis Date: 20-NOV-1997 03:55
File: /chem/5971A.i/va111997.b/nov192701027.d
Project Info: Livingston Rail Yard
Sample Info: 140101-1589

Trip Blank

Lab No.: 97-70112
Report Date: 11/21/97 16:38
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	<0.50	U
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene chloride	75-09-2	<0.50	U
Tetrachloroethene	127-18-4	<0.50	U
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	<0.50	U
Vinyl chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	8.62	86	80--120
Toluene d8	10.0	9.34	93	80--120
p-Bromofluorobenzene	10.0	9.26	93	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:
U= Indicates compound was analyzed for but not detected.

REPORT COMMENTS: None

Analyst: ______ Reviewing Supervisor: MB

ENERGY LABORATORIES

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Client: Envirocon, Inc.
Date Sampled: 12-NOV-97 12:45
Date Received: 13-NOV-97
Analysis Date: 21-NOV-1997 16:39
File: /chem/5971A.i/va112197.b/nov210801008.d
Project Info: Livingston Rail Yard
Sample Info: 140101-1591

Lab No.: 97-70114
Report Date: 11/22/97 10:53
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

L-87-8

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	**156-59-2**	**<0.50**	**0.48J**
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene chloride	75-09-2	<0.50	U
Tetrachloroethene	**127-18-4**	**1.7**	
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	**79-01-6**	**1.1**	
Vinyl chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	8.56	86	80--120
Toluene d8	10.0	9.17	92	80--120
p-Bromofluorobenzene	10.0	9.65	97	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.
J= Estimated value. Present, but less than the limit of quantitation.

REPORT COMMENTS: None

Analyst: ______ Reviewing Supervisor: ______

Quality Control Sample: Laboratory Reagent Blank 19-NOV-1997 17:51
Report Date: 11/21/97 16:37
Extraction Method: EPA 5030
Sample Matrix: WATER
File: /chem/5971A.i/va111997.b/nov191101011.d
Remarks: This Laboratory Reagent Blank Quality Control Sample was extracted and analyzed with your set of samples to determine if method analytes or other interferences are present in the laboratory environment, the reagents, or the apparatus.

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	<0.50	U
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene chloride	75-09-2	<0.50	U
Tetrachloroethene	127-18-4	<0.50	U
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	<0.50	U
Vinyl chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	8.60	86	80--120
Toluene d8	10.0	9.02	90	80--120
p-Bromofluorobenzene	10.0	9.38	94	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

REPORT COMMENTS: None

Analyst: ________ Reviewing Supervisor: ________

Quality Control Sample: Laboratory Reagent Blank 21-NOV-1997 13:28
Report Date: 11/22/97 10:56
Extraction Method: EPA 5030
Sample Matrix: WATER
File: /chem/5971A.i/va112197.b/nov210401004.d

Remarks: This Laboratory Reagent Blank Quality Control Sample was extracted and analyzed with your set of samples to determine if method analytes or other interferences are present in the laboratory environment, the reagents, or the apparatus.

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	<0.50	U
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene chloride	75-09-2	<0.50	U
Tetrachloroethene	127-18-4	<0.50	U
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	<0.50	U
Vinyl chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	8.88	89	80--120
Toluene d8	10.0	9.12	91	80--120
p-Bromofluorobenzene	10.0	9.47	95	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

REPORT COMMENTS: None

Analyst: ____

Reviewing Supervisor: ____

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LABORATORY REPORT

To : Envirocon, Inc.
Address : M. McKinsey
P.O. Box 8243
Missoula, MT 59807

Lab No. : 70114 fs
Date : 12/02/97

GENERAL INFORMATION:

Laboratory No. : 70114
Sample Type : WATER
Sample Point : 140101-1591 L-87-8
Sample Date : 11/12/97
Sample Time : 1245
Sample Received : 11/13/97

LABORATORY DATA:

		Result	Date Analyzed
Methane in headspace	(ppm)	894	11/14/97
Sulfate	(mg/l)	30	11/15/97
Nitrogen,Nitrate	(mg/l)	0.21	11/13/97
Iron,Total	(mg/l)	2.33	11/17/97
Ferrous Iron	(mg/l)	2.3	11/13/97

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LABORATORY REPORT

To : Envirocon, Inc.
Address : M. McKinsey
P.O. Box 8243
Missoula, MT 59807

Lab No. : 97-70115 fs
Date : 12/02/97

GENERAL INFORMATION:

Laboratory No. : 97-70115
Sample Type : WATER
Sample Point : 140101-1590 L-88-13
Sample Date : 11/12/97
Sample Time : 1125
Sample Received : 11/13/97

LABORATORY DATA:

		Result	Date Analyzed
Methane in headspace	(ppm)	12	11/14/97
Sulfate	(mg/l)	49	11/15/97
Nitrogen,Nitrate	(mg/l)	0.55	11/13/97
Iron,Total	(mg/l)	<0.03	11/17/97
Ferrous Iron	(mg/l)	<0.1	11/13/97

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LABORATORY REPORT

Page: 1

To : Envirocon, Inc.
Address : M. McKinsey
P.O. Box 8243
Missoula, MT 59807

Lab No. : 97-70116 fs
Date : 12/02/97

GENERAL INFORMATION:

Laboratory No. : 97-70116
Sample Type : WATER
Sample Point : 140101-1592 L-87-7
Sample Date : 11/12/97
Sample Time : 1420
Sample Received : 11/13/97

LABORATORY DATA:

		Result	Date Analyzed
Methane in headspace	(ppm)	1471	11/14/97
Sulfate	(mg/l)	16	11/15/97
Nitrogen,Nitrate	(mg/l)	<0.05	11/13/97
Iron,Total	(mg/l)	0.23	11/17/97
Ferrous Iron	(mg/l)	0.2	11/13/97

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LABORATORY REPORT

To : Envirocon, Inc.
Address : M. McKinsey
P.O. Box 8243
Missoula, MT 59807

Lab No. : 97-70117 fs
Date : 12/02/97

GENERAL INFORMATION:

Laboratory No. : 97-70117
Sample Type : WATER
Sample Point : 140101-1593
Sample Date : 11/12/97
Sample Time : 1500
Sample Received : 11/13/97

L-87-4

LABORATORY DATA:

		Result	Date Analyzed
Methane in headspace	(ppm)	67	11/14/97
Sulfate	(mg/l)	39	11/15/97
Nitrogen, Nitrate	(mg/l)	0.75	11/13/97
Iron, Total	(mg/l)	<0.03	11/17/97
Ferrous Iron	(mg/l)	<0.1	11/13/97

Lab No(s). 97-70113 - 97-70117

QUALITY ASSURANCE DATA PACKAGE

This report includes the results of quality assurance tests performed with the sample analyses. They are performed to determine if the methodology is in control and to monitor the laboratory's ability to produce accurate and precise results.

	Duplicate Analysis --- mg/l (ppm) ---		Spiked Analysis % Recovery	Blank Analysis, mg/l ppm	------ Reference ------		Date Analyzed
Constituents	Original	Duplicate			Sample Analysis, mg/l ppm	Accept Range mg/l ppm	
Sulfate	17	17	101	<1	126	112-138	15-NOV-97
Nitrate as N	0.07	0.07	106	<0.05	2.28	2.04-2.56	13-NOV-97
Nitrate plus Nitrite as N	0.07	0.07	106	<0.05	2.28	2.04-2.56	13-NOV-97
Total Metals							
Iron	<0.03	<0.03	101	<0.03	4.85	4.50 - 5.50	17-NOV-97
Other Metal Analysis							
Iron +2	<0.1	<0.1	96	<0.1	2.0	1.8 - 2.2	13-NOV-97

Lab Nos.: 97-70106 - 97-70117

Date: 13-NOV-97

Received by: Randa Hoelscher

Logged In by: Randa Hoelscher

SAMPLE CONDITION QA/QC REPORT

This report provides information about the condition of the sample(s) and associated sample custody information on receipt at the laboratory.

Chain of Custody Form Completed & Signed	Yes	Comments:
Chain of Custody Seal	Yes	Comments:
Intact	Yes	Comments:
Signature Match Chain of Custody vs. Seal	Yes	Comments:
Samples Received Cold	Yes	Comments:
Samples Received Within Holding Time	Yes	Comments:
Samples Received in Proper Containers	Yes	Comments:
Samples Received Properly Preserved	No	Comments: Received 97-70113 Ferruous Iron sample at pH7, 2 mls HCl added in lab.

Samples requiring analysis for volatile organics are tested for proper preservation at the time of analysis. Any preservation problems encountered for these samples are noted on the analytical parameter report pages.

Client notified about sample discrepancies:

Who: By: Date/Time:

Method of Shipping: Greyhound 130 359 416 0

Additional comments:

Pg 1 of 2

ENERGY LABORATORIES, INC
P.O. Box 30916 1120 South 27th Street
Billings, Montana 59107

toll-free 800-735-4489
voice 406-252-6325
fax 406-252-6069

CHAIN OF COUSTODY RECORD

PLEASE PRINT OR TYPE ALL INFORMATION EXCEPT SIGNATURES

P.O. # 14O1O1

Project Name / Address: Livingston Rail Yard – Envirocon

Contact Name & Phone (406) 240-1578: Michael McKinsey (406) 523-1150

Sampler's signature:

Invoice to:
Envirocon
Missoula, MT

Report to:
Mike McKinsey
Envirocon

DATE	TIME	composite	grab sample	SAMPLE I.D.	number of containers	Sample Type: A W S V U O (Air Water Soils/solids Vegetation Urine Other)	601	Nitrate (not nitrite + nitrate as N)	Sulfate	Methane	Ferrous Iron				Comments, Special Instructions, etc.
11/10/97	–			140101 – 1582	2	W	X								
↓	–			– 1583	2	W	X								
↓	1608			– 1584	2	W	X								
11/11/97	1215			– 1585	2	W	X								
↓				– 1586	2	W	X								
↓	1520			– 1587	2	W	X								
11/12/97				– 1588	6	W	X	X	X	X	X				
↓				– 1589	2	W	X								
↓	1125			– 1590	4	W		X	X	X	X				
↓	1245			– 1591	6	W	X	X	X	X	X				

1. Relinquished (signature)	Date	Time	Received by: (signature)	3. Relinquished (signature)	Date	Time	Received by (signature):
	11/12/97	1535					
2. Relinquished (signature)	**Date**	**Time**	**Received by: (signature)**	**4. Relinquished (signature)**	**Date**	**Time**	**Received for laboratory by (signature):**
					11/13/97	0730	

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December 2, 1997

Mike McKinsey
Envirocon, Inc.
P.O. Box 8243
Missoula, MT 59807

On November 20, 1997, these samples, represented by our laboratory numbers 97-71747 through 97-71749, were submitted to our laboratory for analysis.

The test results and quality assurance were reviewed and approved by the undersigned.

Reviewed by:

ENERGY LABORATORIES, INC.
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E-MAIL eli@energylab.com • FAX (406) 252-6069 • 1-800-735-4489

Client: Envirocon, Inc.
Date Sampled: 18-NOV-97
Date Received: 20-NOV-97
Analysis Date: 22-NOV-1997 20:53
File: /chem/5971A.i/va112297.b/nov221901019.d
Project Info: Livingston Rail Yard
Sample Info: 140101-1603

Lab No.: 97-71747
Report Date: 11/25/97 11:37
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

89-9

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	**156-59-2**	**4.3**	
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene chloride	75-09-2	<0.50	U
Tetrachloroethene	**127-18-4**	**58**	**D**
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	**79-01-6**	**4.1**	
Vinyl chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	8.21	82	80--120
Toluene d8	10.0	9.10	91	80--120
p-Bromofluorobenzene	10.0	9.62	96	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

D= Value was derived from a 10 times dilution.

REPORT COMMENTS: None

Analyst: Co Reviewing Supervisor:

Quality Control Sample: Laboratory Reagent Blank 22-NOV-1997 11:15
Report Date: 11/25/97 11:38
Extraction Method: EPA 5030
Sample Matrix: WATER
File: /chem/5971A.i/va112297.b/nov220401004.d
Remarks: This Laboratory Reagent Blank Quality Control Sample was extracted and analyzed with your set of samples to determine if method analytes or other interferences are present in the laboratory environment, the reagents, or the apparatus.

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	<0.50	U
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene chloride	75-09-2	<0.50	U
Tetrachloroethene	127-18-4	<0.50	U
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	<0.50	U
Vinyl chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	8.18	82	80--120
Toluene d8	10.0	8.95	89	80--120
p-Bromofluorobenzene	10.0	9.83	98	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

REPORT COMMENTS: None

Analyst: ______ Reviewing Supervisor: ______

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LABORATORY REPORT

To : Envirocon, Inc.
Address : M. McKinsey
P.O. Box 8243
Missoula, MT 59807

Lab No. : 97-71748 fs
Date : 12/02/97

GENERAL INFORMATION:

Laboratory No. : 97-71748
Sample Type : WATER
Sample Point : 140101-1604 L-87-2
Sample Date : 11/19/97
Sample Time : 1015
Sample Received : 11/20/97

LABORATORY DATA:

	Result	Date Analyzed
Nitrogen,Nitrate.......................................(mg/l)........	<0.05	11/20/97
Ferrous Iron...(mg/l)........	1.3	11/20/97

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LABORATORY REPORT

To : Envirocon, Inc.
Address : M. McKinsey
P.O. Box 8243
Missoula, MT 59807

Lab No. : 97-71749 fs
Date : 12/02/97

GENERAL INFORMATION:

Laboratory No. : 97-71749
Sample Type : WATER
Sample Point : 140101-1605 95-1
Sample Date : 11/19/97
Sample Time : 1130
Sample Received : 11/20/97

LABORATORY DATA:

	Result	Date Analyzed
Methane in headspace....................................(ppm).........	19	11/21/97
Sulfate...(mg/l)........	49	11/25/97
Nitrogen,Nitrate..(mg/l)........	1.44	11/20/97
Ferrous Iron..(mg/l)........	<0.1	11/20/97

Lab No(s). 97-71748 - 97-71749

QUALITY ASSURANCE DATA PACKAGE

This report includes the results of quality assurance tests performed with the sample analyses. They are performed to determine if the methodology is in control and to monitor the laboratory's ability to produce accurate and precise results.

Constituents	Duplicate Analysis --- mg/l (ppm) --- Original	Duplicate	Spiked Analysis % Recovery	Blank Analysis, mg/l ppm	------ Reference ------ Sample Analysis, mg/l ppm	Accept Range mg/l ppm	Date Analyzed
Sulfate	19	19	98	<1	127	112-138	25-NOV-97
Nitrate as N	6.22	6.15	113	<0.05	2.27	2.04-2.56	20-NOV-97
Nitrate plus Nitrite as N	6.22	6.15	113	<0.05	2.27	2.04-2.56	20-NOV-97
Other Metal Analysis							
Iron +2	1.3	1.3	99	<0.1	2.0	1.8 - 2.2	20-NOV-97

Lab Nos.: 97-71747 - 97-71749
Date: 20-NOV-97
Received by: Randa Hoelscher
Logged In by: Randa Hoelscher

SAMPLE CONDITION QA/QC REPORT

This report provides information about the condition of the sample(s) and associated sample custody information on receipt at the laboratory.

Chain of Custody Form Completed & Signed	Yes	Comments:
Chain of Custody Seal	Yes	Comments:
Intact	Yes	Comments:
Signature Match Chain of Custody vs. Seal	Yes	Comments:
Samples Received Cold	Yes	Comments:
Samples Received Within Holding Time	Yes	Comments:
Samples Received in Proper Containers	Yes	Comments:
Samples Received Properly Preserved	No	Comments: Ferrous Iron sample 97-71749 subsampled, filtered, preserved in lab.

Samples requiring analysis for volatile organics are tested for proper preservation at the time of analysis. Any preservation problems encountered for these samples are noted on the analytical parameter report pages.

Client notified about sample discrepancies:

Who: By: Date/Time:

Method of Shipping: Greyhound 130 359 419 3

Additional comments:

ENERGY LABORATORIES, INC
P.O. Box 30916 1120 South 27th Street
Billings, Montana 59107

toll-free 800-735-4489
voice 406-252-6325
fax 406-252-6069

CHAIN OF CUSTODY RECORD

PLEASE PRINT OR TYPE ALL INFORMATION EXCEPT SIGNATURES

P.O. # 140101

Project Name / Address: Livingston Rail Yard

Contact Name & Phone: Michael McKinsey (406) 523-1167

Sampler's signature: Michael McKinsey

Invoice to: Envirocon
Missoula, MT

Report to: " "

Analysis Requested

DATE	TIME	composite	grab sample	SAMPLE I.D.	number of containers Sample Type: A W S V U O Air Water Soils/solids Vegetation Urine Other	601	Nitrate (Nitrate only)	Sulfate	Methane	Ferrous Iron			Comments, Special Instructions, etc.
11/18/97				140101-1603	2W	X							
11/19/97	1015			140101-1604	2W		X			X			
↓	1130			140101-1605	3W		X	X	X	X			Please filter and preserve the ferrous iron sample

	Relinquished (signature)	Date	Time	Received by: (signature)
1.	Michael McKinsey	11/19/97	1239	
2.				
3.				
4.		11/20/97	0900	Received for laboratory by (signature): Heidi [illegible]

ENERGY
LABORATORIES

ENERGY LABORATORIES, INC.
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December 3, 1997

Mike McKinsey
Envirocon, Inc.
P.O. Box 8243
Missoula, MT 59807

On November 15, 1997, these samples, represented by our laboratory numbers 97-70473 through 97-70476, were submitted to our laboratory for analysis.

The test results and quality assurance were reviewed and approved by the undersigned.

Reviewed by:________________________

ENERGY LABORATORIES

ENERGY LABORATORIES, INC.
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E-MAIL eli@energylab.com • FAX (406) 252-6069 • 1-800-735-4489

Client: Envirocon, Inc.
Date Sampled: 14-NOV-97 10:45
Date Received: 15-NOV-97
Analysis Date: 22-NOV-1997 15:49
File: /chem/5971A.i/va112297.b/nov221101011.d
Project Info: Livingston Rail Yard
Sample Info: 140101-1599

Lab No.: 97-70473
Report Date: 11/25/97 11:36
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

L-87-2

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon tetrachloride	56-23-5	<0.50	U
Chlorobenzene	**108-90-7**	**44**	D
1,2-Dichlorobenzene	**95-50-1**	**2.3**	
1,4-Dichlorobenzene	**106-46-7**	**4.1**	
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	**156-59-2**	**41**	D
trans-1,2-Dichloroethene	**156-60-5**	**1.6**	
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene chloride	75-09-2	<0.50	U
Tetrachloroethene	127-18-4	<0.50	U
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	**79-01-6**	**4.5**	
Vinyl chloride	**75-01-4**	**35**	D
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	**95-49-8**	**65**	D
1,3-Dichlorobenzene	**541-73-1**	**0.62**	
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	8.48	85	80--120
Toluene d8	10.0	9.07	91	80--120
p-Bromofluorobenzene	10.0	9.32	93	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.
D= Value was derived from a 10 times dilution.

REPORT COMMENTS: None

Analyst: ____________ Reviewing Supervisor: ____________

ENERGY LABORATORIES

ENERGY LABORATORIES, INC.

P.O. BOX 30916 • 1120 SOUTH 27TH STREET • BILLINGS, MT 59107-0916 • PHONE (406) 252 6325
E-MAIL eli@energylab.com • FAX (406) 252-6069 • 1-800-735-4489

Client: Envirocon, Inc.
Date Sampled: 14-NOV-97 11:00
Date Received: 15-NOV-97
Analysis Date: 22-NOV-1997 17:06
File: /chem/5971A.i/va112297.b/nov221301013.d
Project Info: Livingston Rail Yard
Sample Info: 140101-1600

Field
L-87-2 Duplicate

Lab No.: 97-70474
Report Date: 11/25/97 11:36
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon tetrachloride	56-23-5	<0.50	U
Chlorobenzene	**108-90-7**	**42**	D
1,2-Dichlorobenzene	**95-50-1**	**2.4**	
1,4-Dichlorobenzene	**106-46-7**	**4.2**	
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	**156-59-2**	**40**	D
trans-1,2-Dichloroethene	**156-60-5**	**1.7**	
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene chloride	75-09-2	<0.50	U
Tetrachloroethene	127-18-4	<0.50	U
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	**79-01-6**	**4.4**	
Vinyl chloride	**75-01-4**	**34**	D
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	**95-49-8**	**19**	
1,3-Dichlorobenzene	**541-73-1**	**0.65**	
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	8.28	83	80--120
Toluene d8	10.0	9.30	93	80--120
p-Bromofluorobenzene	10.0	9.38	94	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:
- U= Indicates compound was analyzed for but not detected.
- D= Value was derived from a 10 times dilution.

REPORT COMMENTS: None

Analyst: G Reviewing Supervisor: gm

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Client: Envirocon, Inc.
Date Sampled: 14-NOV-97 12:45
Date Received: 15-NOV-97
Analysis Date: 22-NOV-1997 18:20
File: /chem/5971A.i/va112297.b/nov221501015.d
Project Info: Livingston Rail Yard
Sample Info: 140101-1601

94-1

Lab No.: 97-70475
Report Date: 11/25/97 11:36
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	<0.50	U
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene chloride	75-09-2	<0.50	U
Tetrachloroethene	**127-18-4**	**1.9**	
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	<0.50	U
Vinyl chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	8.06	81	80--120
Toluene d8	10.0	9.13	91	80--120
p-Bromofluorobenzene	10.0	9.67	97	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

REPORT COMMENTS: None

Analyst:______ Reviewing Supervisor:______

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Client: Envirocon, Inc.
Date Sampled: 14-NOV-97 13:00
Date Received: 15-NOV-97
Analysis Date: 22-NOV-1997 19:36
File: /chem/5971A.i/val12297.b/nov221701017.d
Project Info: Livingston Rail Yard
Sample Info: 140101-1602

Lab No.: 97-70476
Report Date: 11/25/97 11:36
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

Field
94-1 Duplicate

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	<0.50	U
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene chloride	75-09-2	<0.50	U
Tetrachloroethene	**127-18-4**	**1.9**	
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	<0.50	U
Vinyl chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	8.68	87	80--120
Toluene d8	10.0	9.62	96	80--120
p-Bromofluorobenzene	10.0	9.81	98	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

REPORT COMMENTS: None

Analyst:________ Reviewing Supervisor:________

Quality Control Sample: Laboratory Reagent Blank 22-NOV-1997 11:15
Report Date: 11/25/97 11:38
Extraction Method: EPA 5030
Sample Matrix: WATER
File: /chem/5971A.i/val12297.b/nov220401004.d
Remarks: This Laboratory Reagent Blank Quality Control Sample was extracted and analyzed with your set of samples to determine if method analytes or other interferences are present in the laboratory environment, the reagents, or the apparatus.

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	<0.50	U
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene chloride	75-09-2	<0.50	U
Tetrachloroethene	127-18-4	<0.50	U
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	<0.50	U
Vinyl chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	8.18	82	80--120
Toluene d8	10.0	8.95	89	80--120
p-Bromofluorobenzene	10.0	9.83	98	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

REPORT COMMENTS: None

Analyst:______ Reviewing Supervisor:______

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LABORATORY REPORT

To : Envirocon, Inc.
Address : M. McKinsey
P.O. Box 8243
Missoula, MT 59807

Lab No. : 70473 fs
Date : 12/02/97

GENERAL INFORMATION:

Laboratory No. : 70473
Sample Type : WATER
Sample Point : 140101-1599 L-87-2
Sample Date : 11/14/97
Sample Time : 1045
Sample Received : 11/15/97

LABORATORY DATA:

	Result	Date Analyzed
Methane in headspace....................(ppm).........	7530	11/19/97
Sulfate....................(mg/l)........	21	11/21/97

Lab No(s). 97-70473 - 97-70473

QUALITY ASSURANCE DATA PACKAGE

This report includes the results of quality assurance tests performed with the sample analyses. They are performed to determine if the methodology is in control and to monitor the laboratory's ability to produce accurate and precise results.

Constituents	Duplicate Analysis --- mg/l (ppm) --- Original	Duplicate	Spiked Analysis % Recovery	Blank Analysis, mg/l ppm	------ Reference ------ Sample Analysis, mg/l ppm	Accept Range mg/l ppm	Date Analyzed
Sulfate	35	35	97	<1	125	112-138	21-NOV-97

Lab Nos.: 97-70473 - 97-70476
Date: 15-NOV-97
Received by: Pam Fink
Login Date: 18-NOV-97
Logged In by: Randa Hoelscher

SAMPLE CONDITION QA/QC REPORT

This report provides information about the condition of the sample(s) and associated sample custody information on receipt at the laboratory.

Chain of Custody Form Completed & Signed	Yes	Comments:
Chain of Custody Seal	Yes	Comments:
Intact	Yes	Comments:
Signature Match Chain of Custody vs. Seal	Yes	Comments:
Samples Received Cold	Yes	Comments:
Samples Received Within Holding Time	No	Comments: Nitrate & Ferrous Iron rec'd past holding time.
Samples Received in Proper Containers	Yes	Comments:
Samples Received Properly Preserved	N/A	Comments:

Samples requiring analysis for volatile organics are tested for proper preservation at the time of analysis. Any preservation problems encountered for these samples are noted on the analytical parameter report pages.

Client notified about sample discrepancies:

Who: Mike McKinsey By: Randa Hoelscher Date/Time: 17-NOV-97

Method of Shipping: Greyhound 130 359 193 8

Additional comments: Left message for client that Nitrate & Ferrous Iron were rec'd past holding time. Mike called back and said he would resample.

ENERGY LABORATORIES, INC
P.O. Box 30916 1120 South 27th Street
Billings, Montana 59107

toll-free 800-735-4489
voice 406-252-6325
fax 406-252-6069

CHAIN OF CUSTODY RECORD

PLEASE PRINT OR TYPE ALL INFORMATION EXCEPT SIGNATURES

P.O. # 140101

Project Name / Address: Livingston Rail Yard

Contact Name & Phone: Mike McKinsey

Sampler's signature: Michael McKinsey

Invoice to: Envirocon
Missoula, MT

Report to: ״

Analysis Requested

DATE	TIME	composite	grab sample	SAMPLE I.D.	number of containers	Sample Type: A W S V U O Air Water Soils/solids Vegetation Urine Other	Nitrate only	Sulfate	Methane	Ferrous Iron	601				Comments, Special Instructions, etc.
11/14/97	1045			140101-1599	5	W	X	X	X	X	X				✱
↓	1100			-1600	2	W					X				
	1245			-1601	2	W					X				
	1300			-1602	2	W					X				

1. Relinquished (signature) Michael McKinsey	Date 11/14/97	Time 1335	Received by: (signature)	3. Relinquished (signature)	Date	Time	Received by (signature):
2. Relinquished (signature)	Date	Time	Received by: (signature)	4. Relinquished (signature)	Date 11/17/97	Time 0745	Received for laboratory by (signature):

✱ 11/17/97 Notified client NO_3 + Fe^{+2} were rec'd past holding time via a message. Mike called back + said he would resample.

MAY 1998

BNSF GROUND WATER SAMPLE RESULTS

ENERGY LABORATORIES

ENERGY LABORATORIES, INC.
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June 8, 1998

Michael McKinsey
Envirocon, Inc.
P.O. Box 8243
Missoula, MT 59807

Dear Michael:

On May 20, 1998, these samples, represented by our laboratory numbers 98-35055 through 98-35058, were submitted to our laboratory for analysis.

The test results and quality assurance were reviewed and approved by the undersigned.

Reviewed by: Deborah C. Grimm

ENERGY LABORATORIES

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FAX (406) 252-6069 • 1-800-735-4489 • E-MAIL eli@energylab.com

Client: Envirocon, Inc.
Date Sampled: 18-MAY-98 17:00
Date Received: 20-MAY-98
Analysis Date: 29-MAY-1998 14:12
File: /chem/IONTRAP2.i/vc052998.b/9835055a.d
Project Info: Livingston Rail Yard
Sample Info: 140101-160~~6~~08

94-2

Lab No.: 98-35055
Report Date: 06/01/98 11:36
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon Tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	<0.50	U
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene Chloride	75-09-2	<0.50	U
Tetrachloroethene	**127-18-4**	**<0.50**	**0.42J**
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	<0.50	U
Vinyl Chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	9.27	93	80--120
Toluene d8	10.0	9.61	96	80--120
p-Bromofluorobenzene	10.0	10.1	101	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:
U= Indicates compound was analyzed for but not detected.
J= Estimated value. Present, but less than the limit of quantitation.

REPORT COMMENTS: None

Analyst: ______ Reviewing Supervisor: ______

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Client: Envirocon, Inc.
Date Sampled: 18-MAY-98 18:03
Date Received: 20-MAY-98
Analysis Date: 29-MAY-1998 15:00
File: /chem/IONTRAP2.i/vc052998.b/9835056a.d
Project Info: Livingston Rail Yard
Sample Info: 140101-160T09

Lab No.: 98-35056
Report Date: 06/01/98 11:36
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

94-1

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon Tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	<0.50	U
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene Chloride	75-09-2	<0.50	U
Tetrachloroethene	**127-18-4**	**1.6**	
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	<0.50	U
Vinyl Chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	9.50	95	80--120
Toluene d8	10.0	9.80	98	80--120
p-Bromofluorobenzene	10.0	10.4	104	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

REPORT COMMENTS: None

Analyst: HJC Reviewing Supervisor:

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FAX (406) 252-6069 • 1-800-735-4489 • E-MAIL eli@energylab.com

Client: Envirocon, Inc.
Date Sampled: 19-MAY-98
Date Received: 20-MAY-98
Analysis Date: 29-MAY-1998 16:11
File: /chem/IONTRAP2.i/vc052998.b/9835057a.d
Project Info: Livingston Rail Yard
Sample Info: 140101-16~~09~~10

92-2

Lab No.: 98-35057
Report Date: 06/01/98 11:36
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon Tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	**156-59-2**	**<0.50**	**0.42J**
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene Chloride	75-09-2	<0.50	U
Tetrachloroethene	**127-18-4**	**8.1**	
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	**79-01-6**	**0.57**	
Vinyl Chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	9.92	99	80--120
Toluene d8	10.0	10.1	101	80--120
p-Bromofluorobenzene	10.0	10.3	103	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.
J= Estimated value. Present, but less than the limit of quantitation.

REPORT COMMENTS: None

Analyst: ______ Reviewing Supervisor: ______

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Client: Envirocon, Inc.
Date Sampled: 19-MAY-98
Date Received: 20-MAY-98
Analysis Date: 29-MAY-1998 16:50
File: /chem/IONTRAP2.i/vc052998.b/9835058a.d
Project Info: Livingston Rail Yard
Sample Info: 140101-16~~08~~10

Lab No.: 98-35058
Report Date: 06/01/98 11:36
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

89-2

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon Tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	<0.50	U
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene Chloride	75-09-2	<0.50	U
Tetrachloroethene	127-18-4	<0.50	U
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	<0.50	U
Vinyl Chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	9.58	96	80--120
Toluene d8	10.0	9.70	97	80--120
p-Bromofluorobenzene	10.0	10.4	104	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:
U= Indicates compound was analyzed for but not detected.

REPORT COMMENTS: None

Analyst: ____ Reviewing Supervisor: ____

EPA METHOD 624 MATRIX SPIKE REPORT

Quality Control Sample: Matrix Spike Analysis 01-JUN-1998 13:24
Lab No.: 98-35055
Report Date: 06/03/98 09:38
Extraction Method: EPA 5030
Sample Matrix: WATER
File: /chem/IONTRAP2.i/vc060198.b/9835055s.d

Remarks: These compounds were spiked into the sample matrix to determine if the sample matrix contributes bias to the analytical results and to monitor the accuracy of the methodology.

CONCENTRATION UNITS = ug/L (ppb)

Spike Compound	Spike Added	Sample Concentration	Matrix Spike Concentration	MS %Rec	QC Limits
Carbon Tetrachloride	5.00	<0.500	4.53	91	60--130
Chlorobenzene	5.00	<0.500	4.42	88	60--130
1,2-Dichlorobenzene	5.00	<0.500	4.73	95	60--130
1,4-Dichlorobenzene	5.00	<0.500	4.51	90	60--130
1,2-Dichloroethane	5.00	<0.500	5.44	109	60--130
1,1-Dichloroethene	5.00	<0.500	4.70	94	60--130
cis-1,2-Dichloroethene	5.00	<0.500	4.86	97	60--130
trans-1,2-Dichloroethene	5.00	<0.500	4.47	89	60--130
1,2-Dichloropropane	5.00	<0.500	4.78	96	60--130
Methylene Chloride	5.00	<0.500	4.20	84	60--130
Tetrachloroethene	5.00	<0.500	5.12	102	60--130
1,1,1-Trichloroethane	5.00	<0.500	4.44	89	60--130
1,1,2-Trichloroethane	5.00	<0.500	4.53	91	60--130
Trichloroethene	5.00	<0.500	4.38	88	60--130
Bromodichloromethane	5.00	<0.500	4.94	99	60--130
Bromoform	5.00	<0.500	4.61	92	60--130
Chlorodibromomethane	5.00	<0.500	4.85	97	60--130
Chloroform	5.00	<0.500	4.72	94	60--130
2-Chlorotoluene	5.00	<0.500	4.56	91	60--130
1,3-Dichlorobenzene	5.00	<0.500	4.57	91	60--130
1,1-Dichloroethane	5.00	<0.500	4.40	88	60--130
cis-1,3-Dichloropropene	5.00	<0.500	4.88	98	60--130
trans-1,3-Dichloropropene	5.00	<0.500	4.54	91	60--130
1,1,2,2-Tetrachloroethane	5.00	<0.500	4.81	96	60--130

REPORT COMMENTS: None

Analyst: Hgc Reviewing Supervisor:

Quality Control Sample: Laboratory Reagent Blank 29-MAY-1998 09:39
Report Date: 06/03/98 09:47
Extraction Method: EPA 5030
Sample Matrix: WATER
File: /chem/IONTRAP2.i/vc052998.b/blk0529a.d
Remarks: This Laboratory Reagent Blank Quality Control Sample was extracted and analyzed with your set of samples to determine if method analytes or other interferences are present in the laboratory environment, the reagents, or the apparatus.

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon Tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	<0.50	U
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene Chloride	75-09-2	<0.50	U
Tetrachloroethene	127-18-4	<0.50	U
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	<0.50	U
Vinyl Chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	9.85	98	80--120
Toluene d8	10.0	9.78	98	80--120
p-Bromofluorobenzene	10.0	9.99	100	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:
U= Indicates compound was analyzed for but not detected.

REPORT COMMENTS: None

Analyst: ____ Reviewing Supervisor: ____

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LABORATORY REPORT

Page: 1

To : Envirocon, Inc.
Address : Mike McKinsey
P.O. Box 8243
Missoula, MT 59807

Lab No. : 35058 kr
Date : 6/08/98

GENERAL INFORMATION:

Laboratory No. : 35058
Sample Type : WATER
Sample Point : 140101-16~~08~~10 89-2
Sample Date : 5/19/98
Sample Time :
Sample Received : 5/20/98

LABORATORY DATA:

	Result		Date Analyzed
Sulfate...(mg/l)........	65		5/21/98
Nitrogen,Nitrate..(mg/l)........	0.87		5/20/98
Nitrogen,Nitrite..(mg/l)........	<0.05		5/20/98
Ferrous Iron..(mg/l)........	<0.1		5/20/98
Methane in headspace..(ppm).........	4	(1)	5/21/98

(1) Volume of water in vial: 34ml.

Lab No(s). 98-35058 - 98-35058

QUALITY ASSURANCE DATA PACKAGE

This report includes the results of quality assurance tests performed with the sample analyses. They are performed to determine if the methodology is in control and to monitor the laboratory's ability to produce accurate and precise results.

		Duplicate Analysis --- mg/l (ppm) ---		Spiked Analysis	Blank	------ Reference ------		
nstituents		Original	Duplicate	% Recovery	Analysis, mg/l ppm	Sample Analysis, mg/l ppm	Accept Range mg/l ppm	Date Analyzed
lfate		68	65	102	<1	121	112-138	21-MAY-98
trate as N		2.00	2.00	105	<0.05	2.37	2.04-2.56	20-MAY-98
trite as N		<0.05	<0.05	100	<0.05	0.52	0.45-0.55	20-MAY-98
thane, Headspace	ppm	N/A	N/A	N/A	<1	14	13-15	21-MAY-98
tals Analysis								
rrous Iron		<0.1	<0.1	101	<0.1	1.9	1.8 - 2.2	20-MAY-98

Lab Nos.: 98-35055 - 98-35058

Date: 20-MAY-98

Received by: Randa Hoelscher

Logged In by: Randa Hoelscher

SAMPLE CONDITION QA/QC REPORT

This report provides information about the condition of the sample(s) and associated sample custody information on receipt at the laboratory.

Chain of Custody Form Completed & Signed	Yes	Comments:
Chain of Custody Seal	Yes	Comments:
Intact	Yes	Comments:
Signature Match Chain of Custody vs. Seal	Yes	Comments:
Samples Received Cold	Yes	Comments:
Samples Received Within Holding Time	Yes	Comments:
Samples Received in Proper Containers	Yes	Comments:
Samples Received Properly Preserved	Yes	Comments:

Samples requiring analysis for volatile organics are tested for proper preservation at the time of analysis. Any preservation problems encountered for these samples are noted on the analytical parameter report pages.

Client notified about sample discrepancies:

Who: By: Date/Time:

Method of Shipping: Greyhound 130 359 510 6

Additional comments:

Chain of Custody

Project #: 140101 Project Name: Livingston Rail Yard

Envirocon
500 Taylor St
Missoula MT 59802 (406) 523-1150

Sampler: Michael McKenney

Date	Time	Sample#	# Containers	601	Nitrate-Nitrate Only	Sulfate	Methane	Ferrous Iron
5/18/98	~~1803~~ 1700	140101-1606	2	X				
5/18/98	1803	140101-1607	2	X				
5/19/98		140101-1608	6	X	X	X	X	X
5/19/98		140101-1609	2	X				

Relinquished by: Michael McKenney 5/19/98 1609

Rec'd by: 05/20/98 @ 0746

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June 10, 1998

Michael McKinsey
Envirocon, Inc.
P.O. Box 8243
Missoula, MT 59807

Dear Michael:

On May 22, 1998, these samples, represented by our laboratory numbers 98-35389 through 98-35402, were submitted to our laboratory for analysis.

The test results and quality assurance were reviewed and approved by the undersigned.

Reviewed by: Deborah A Grimm

ENERGY LABORATORIES
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Client: Envirocon, Inc.
Date Sampled: 19-MAY-98
Date Received: 22-MAY-98
Analysis Date: 29-MAY-1998 17:41
File: /chem/IONTRAP2.i/vc052998.b/9835392a.d
Project Info: Livingston Rail Yard
Sample Info: 140101-16~~10~~12 LS-11

Lab No.: 98-35392
Report Date: 06/01/98 11:36
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon Tetrachloride	56-23-5	<0.50	U
Chlorobenzene	**108-90-7**	**1.2**	
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	**106-46-7**	**2.3**	
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	**156-59-2**	**6.7**	
trans-1,2-Dichloroethene	**156-60-5**	**<0.50**	**0.16J**
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene Chloride	75-09-2	<0.50	U
Tetrachloroethene	**127-18-4**	**17**	**D**
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	**79-01-6**	**6.8**	
Vinyl Chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	**541-73-1**	**<0.50**	**0.30J**
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	9.81	98	80--120
Toluene d8	10.0	10.0	100	80--120
p-Bromofluorobenzene	10.0	10.0	100	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.
D= Value was derived from a 5 times dilution.
J= Estimated value. Present, but less than the limit of quantitation.

REPORT COMMENTS: None

Analyst: ________ Reviewing Supervisor: ________

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Client: Envirocon, Inc.
Date Sampled: 20-MAY-98 11:15
Date Received: 22-MAY-98
Analysis Date: 29-MAY-1998 18:30
File: /chem/IONTRAP2.i/vc052998.b/9835393a.d
Project Info: Livingston Rail Yard
Sample Info: 140101-161113

Lab No.: 98-35393
Report Date: 06/01/98 11:37
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

90-3

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon Tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	**156-59-2**	**1.0**	
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene Chloride	75-09-2	<0.50	U
Tetrachloroethene	**127-18-4**	**20**	**D**
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	**79-01-6**	**2.0**	
Vinyl Chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	9.92	99	80--120
Toluene d8	10.0	10.4	104	80--120
p-Bromofluorobenzene	10.0	10.1	101	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:
U= Indicates compound was analyzed for but not detected.
D= Value was derived from a 5 times dilution.

REPORT COMMENTS: None

Analyst: ______ Reviewing Supervisor: ______

ENERGY LABORATORIES

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FAX (406) 252-6069 • 1-800-735-4489 • E-MAIL eli@energylab.com

Client: Envirocon, Inc.
Date Sampled: 20-MAY-98 12:30
Date Received: 22-MAY-98
Analysis Date: 29-MAY-1998 19:19
File: /chem/IONTRAP2.i/vc052998.b/9835394a.d
Project Info: Livingston Rail Yard
Sample Info: 140101-1612/4

Lab No.: 98-35394
Report Date: 06/01/98 11:37
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

89-4

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon Tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	**156-59-2**	**4.0**	
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene Chloride	75-09-2	<0.50	U
Tetrachloroethene	**127-18-4**	**59**	**D**
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	**79-01-6**	**1.4**	
Vinyl Chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	9.91	99	80--120
Toluene d8	10.0	9.79	98	80--120
p-Bromofluorobenzene	10.0	9.89	99	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.
D= Value was derived from a 10 times dilution.

REPORT COMMENTS: None

Analyst: ______

Reviewing Supervisor: ______

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Client: Envirocon, Inc.
Date Sampled: 20-MAY-98 12:40
Date Received: 22-MAY-98
Analysis Date: 29-MAY-1998 20:10
File: /chem/IONTRAP2.i/vc052998.b/9835395a.d
Project Info: Livingston Rail Yard
Sample Info: 140101-161~~2~~15

89-4 duplicate

Lab No.: 98-35395
Report Date: 06/01/98 11:37
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon Tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	**156-59-2**	**4.0**	
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene Chloride	75-09-2	<0.50	U
Tetrachloroethene	**127-18-4**	**109**	**D**
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	**79-01-6**	**1.5**	
Vinyl Chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	9.92	99	80--120
Toluene d8	10.0	10.1	101	80--120
p-Bromofluorobenzene	10.0	10.3	103	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.
D= Value was derived from a 10 times dilution.

REPORT COMMENTS: None

Analyst: ______ Reviewing Supervisor: ______

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Client: Envirocon, Inc.
Date Sampled: 20-MAY-98 14:30
Date Received: 22-MAY-98
Analysis Date: 29-MAY-1998 20:59
File: /chem/IONTRAP2.i/vc052998.b/9835396a.d
Project Info: Livingston Rail Yard
Sample Info: 140101-161~~4~~/6

89-10

Lab No.: 98-35396
Report Date: 06/01/98 11:37
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon Tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	**156-59-2**	**5.4**	
trans-1,2-Dichloroethene	**156-60-5**	**<0.50**	**0.33J**
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene Chloride	75-09-2	<0.50	U
Tetrachloroethene	**127-18-4**	**48**	**D**
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	**79-01-6**	**4.9**	
Vinyl Chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	10.2	102	80--120
Toluene d8	10.0	9.02	90	80--120
p-Bromofluorobenzene	10.0	10.1	101	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:
U= Indicates compound was analyzed for but not detected.
D= Value was derived from a 10 times dilution.
J= Estimated value. Present, but less than the limit of quantitation.

REPORT COMMENTS: None

Analyst: ________ Reviewing Supervisor: ________

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Client: Envirocon, Inc.
Date Sampled: 20-MAY-98 16:05
Date Received: 22-MAY-98
Analysis Date: 29-MAY-1998 21:48
File: /chem/IONTRAP2.i/vc052998.b/9835397a.d
Project Info: Livingston Rail Yard
Sample Info: 140101-16~~15~~17

Lab No.: 98-35397
Report Date: 06/01/98 11:37
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

89-6

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon Tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	<0.50	U
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene Chloride	75-09-2	<0.50	U
Tetrachloroethene	**127-18-4**	**15**	
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	**79-01-6**	**<0.50**	**0.31J**
Vinyl Chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	10.4	104	80--120
Toluene d8	10.0	9.92	99	80--120
p-Bromofluorobenzene	10.0	10.0	100	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

J= Estimated value. Present, but less than the limit of quantitation.

REPORT COMMENTS: None

Analyst: ________ Reviewing Supervisor: ________

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Client: Envirocon, Inc.
Date Sampled: 20-MAY-98 16:25
Date Received: 22-MAY-98
Analysis Date: 30-MAY-1998 16:14
File: /chem/IONTRAP2.i/vc053098.b/9835398a.d
Project Info: Livingston Rail Yard
Sample Info: 140101-161~~6~~18

Rainbow

Lab No.: 98-35398
Report Date: 06/03/98 08:47
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon Tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	**156-59-2**	**1.2**	
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene Chloride	75-09-2	<0.50	U
Tetrachloroethene	**127-18-4**	**7.6**	
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	**79-01-6**	**1.6**	
Vinyl Chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	11.2	112	80--120
Toluene d8	10.0	10.0	100	80--120
p-Bromofluorobenzene	10.0	9.00	90	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

REPORT COMMENTS: None

Analyst: HJC Reviewing Supervisor: MM

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Client: Envirocon, Inc.
Date Sampled: 21-MAY-98
Date Received: 22-MAY-98
Analysis Date: 30-MAY-1998 17:48
File: /chem/IONTRAP2.i/vc053098.b/9835399a.d
Project Info: Livingston Rail Yard #1
Sample Info: 140101-16179

Lab No.: 98-35399
Report Date: 06/03/98 08:47
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon Tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	<0.50	U
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene Chloride	75-09-2	<0.50	U
Tetrachloroethene	127-18-4	<0.50	U
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	<0.50	U
Vinyl Chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	11.2	112	80--120
Toluene d8	10.0	9.75	98	80--120
p-Bromofluorobenzene	10.0	9.48	95	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

REPORT COMMENTS: None

Analyst: ______ Reviewing Supervisor: ______

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Client: Envirocon, Inc.
Date Sampled: 21-MAY-98
Date Received: 22-MAY-98
Analysis Date: 30-MAY-1998 13:55
File: /chem/IONTRAP2.i/vc053098.b/9835389a.d
Project Info: Livingston Rail Yard
Sample Info: 140101-16~~18~~20 #2

Lab No.: 98-35389
Report Date: 06/03/98 08:47
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon Tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	<0.50	U
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene Chloride	75-09-2	<0.50	U
Tetrachloroethene	**127-18-4**	**<0.50**	**0.29J**
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	<0.50	U
Vinyl Chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	10.9	109	80--120
Toluene d8	10.0	9.13	91	80--120
p-Bromofluorobenzene	10.0	9.34	93	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

J= Estimated value. Present, but less than the limit of quantitation.

REPORT COMMENTS: None

Analyst: ______ Reviewing Supervisor: ______

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Client: Envirocon, Inc.
Date Sampled: 21-MAY-98
Date Received: 22-MAY-98
Analysis Date: 30-MAY-1998 14:41
File: /chem/IONTRAP2.i/vc053098.b/9835390a.d
Project Info: Livingston Rail Yard
Sample Info: 140101-161~~5~~21

Lab No.: 98-35390
Report Date: 06/03/98 08:47
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

L-88-13

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon Tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	**156-59-2**	**1.1**	
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene Chloride	75-09-2	<0.50	U
Tetrachloroethene	**127-18-4**	**14**	
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	**79-01-6**	**2.3**	
Vinyl Chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	11.4	114	80--120
Toluene d8	10.0	10.1	101	80--120
p-Bromofluorobenzene	10.0	9.35	94	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:
U= Indicates compound was analyzed for but not detected.

REPORT COMMENTS: None

Analyst: FAC
Reviewing Supervisor: WB

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Client: Envirocon, Inc.
Date Sampled: 21-MAY-98
Date Received: 22-MAY-98
Analysis Date: 01-JUN-1998 14:14
File: /chem/IONTRAP2.i/vc060198.b/9835390b.d
Project Info: Livingston Rail Yard
Sample Info: 140101-16~~19~~21

Lab No.: 98-35390 Duplicate
Report Date: 06/03/98 16:24
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

L-88-13 Lab Dup

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon Tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	**156-59-2**	**1.1**	
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene Chloride	75-09-2	<0.50	U
Tetrachloroethene	**127-18-4**	**14**	
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	**79-01-6**	**2.3**	
Vinyl Chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	11.0	110	80--120
Toluene d8	10.0	9.62	96	80--120
p-Bromofluorobenzene	10.0	9.82	98	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:
U= Indicates compound was analyzed for but not detected.

REPORT COMMENTS: None

Analyst: ______ Reviewing Supervisor: ______

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Client: Envirocon, Inc.
Date Sampled: 21-MAY-98 12:00
Date Received: 22-MAY-98
Analysis Date: 30-MAY-1998 15:27
File: /chem/IONTRAP2.i/vc053098.b/9835391a.d
Project Info: Livingston Rail Yard
Sample Info: 140101-16~~20~~22

Lab No.: 98-35391
Report Date: 06/03/98 08:47
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

L-87-4

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon Tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	<0.50	U
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene Chloride	75-09-2	<0.50	U
Tetrachloroethene	127-18-4	<0.50	U
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	<0.50	U
Vinyl Chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	11.3	113	80--120
Toluene d8	10.0	9.85	98	80--120
p-Bromofluorobenzene	10.0	8.99	90	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

REPORT COMMENTS: None

Analyst: ______ Reviewing Supervisor: ______

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Client: Envirocon, Inc.
Date Sampled: 21-MAY-98 13:45
Date Received: 22-MAY-98
Analysis Date: 30-MAY-1998 18:35
File: /chem/IONTRAP2.i/vc053098.b/9835400a.d
Project Info: Livingston Rail Yard
Sample Info: 140101-162~~1~~23 #4

Lab No.: 98-35400
Report Date: 06/03/98 08:47
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon Tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	<0.50	U
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene Chloride	75-09-2	<0.50	U
Tetrachloroethene	127-18-4	<0.50	U
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	<0.50	U
Vinyl Chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	11.4	114	80--120
Toluene d8	10.0	10.2	102	80--120
p-Bromofluorobenzene	10.0	9.41	94	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

REPORT COMMENTS: None

Analyst: ________ Reviewing Supervisor: ________

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Client: Envirocon, Inc.
Date Sampled: 21-MAY-98 13:45
Date Received: 22-MAY-98
Analysis Date: 01-JUN-1998 15:50
File: /chem/IONTRAP2.i/vc060198.b/9835400b.d
Project Info: Livingston Rail Yard
Sample Info: 140101-16~~21~~ ~~31~~ 23

Lab No.: 98-35400 Duplicate
Report Date: 06/03/98 16:24
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

#4 Lab Dup

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon Tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	<0.50	U
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene Chloride	75-09-2	<0.50	U
Tetrachloroethene	127-18-4	<0.50	U
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	<0.50	U
Vinyl Chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	11.3	113	80--120
Toluene d8	10.0	9.71	97	80--120
p-Bromofluorobenzene	10.0	9.61	96	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

REPORT COMMENTS: None

Analyst: ______ Reviewing Supervisor: ______

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Client: Envirocon, Inc.
Date Sampled: 21-MAY-98 14:02
Date Received: 22-MAY-98
Analysis Date: 30-MAY-1998 19:22
File: /chem/IONTRAP2.i/vc053098.b/9835401a.d
Project Info: Livingston Rail Yard
Sample Info: 140101-16~~22~~ ~~25~~ 24 Trip Blank

Lab No.: 98-35401
Report Date: 06/03/98 08:48
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon Tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	<0.50	U
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene Chloride	75-09-2	<0.50	U
Tetrachloroethene	127-18-4	<0.50	U
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	<0.50	U
Vinyl Chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	10.8	108	80--120
Toluene d8	10.0	9.58	96	80--120
p-Bromofluorobenzene	10.0	9.05	90	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

REPORT COMMENTS: None

Analyst: ______ Reviewing Supervisor: ______

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Client: Envirocon, Inc.
Date Sampled: 21-MAY-98 15:00
Date Received: 22-MAY-98
Analysis Date: 30-MAY-1998 20:09
File: /chem/IONTRAP2.i/vc053098.b/9835402a.d
Project Info: Livingston Rail Yard
Sample Info: 140101-162[illegible]25 #5

Lab No.: 98-35402
Report Date: 06/03/98 08:48
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon Tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	<0.50	U
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene Chloride	75-09-2	<0.50	U
Tetrachloroethene	**127-18-4**	**<0.50**	**0.21J**
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	<0.50	U
Vinyl Chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	11.1	111	80--120
Toluene d8	10.0	10.1	101	80--120
p-Bromofluorobenzene	10.0	9.51	95	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

J= Estimated value. Present, but less than the limit of quantitation.

REPORT COMMENTS: None

Analyst: ____ Reviewing Supervisor: ____

Quality Control Sample: Laboratory Reagent Blank 29-MAY-1998 09:39
Report Date: 06/03/98 09:47
Extraction Method: EPA 5030
Sample Matrix: WATER
File: /chem/IONTRAP2.i/vc052998.b/blk0529a.d
Remarks: This Laboratory Reagent Blank Quality Control Sample was extracted and analyzed with your set of samples to determine if method analytes or other interferences are present in the laboratory environment, the reagents, or the apparatus.

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon Tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	<0.50	U
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene Chloride	75-09-2	<0.50	U
Tetrachloroethene	127-18-4	<0.50	U
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	<0.50	U
Vinyl Chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	9.85	98	80--120
Toluene d8	10.0	9.78	98	80--120
p-Bromofluorobenzene	10.0	9.99	100	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

REPORT COMMENTS: None

Analyst: JAC Reviewing Supervisor: MVB

Quality Control Sample: Laboratory Reagent Blank 30-MAY-1998 12:16
Report Date: 06/03/98 08:47
Extraction Method: EPA 5030
Sample Matrix: WATER
File: /chem/IONTRAP2.i/vc053098.b/blk0530a.d
Remarks: This Laboratory Reagent Blank Quality Control Sample was extracted and analyzed with your set of samples to determine if method analytes or other interferences are present in the laboratory environment, the reagents, or the apparatus.

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon Tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	<0.50	U
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene Chloride	75-09-2	<0.50	U
Tetrachloroethene	127-18-4	<0.50	U
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	<0.50	U
Vinyl Chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	10.9	109	80--120
Toluene d8	10.0	9.91	99	80--120
p-Bromofluorobenzene	10.0	9.57	96	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

REPORT COMMENTS: None

Analyst: ______ Reviewing Supervisor: ______

EPA METHOD 624 MATRIX SPIKE REPORT

Quality Control Sample: Matrix Spike Analysis 01-JUN-1998 15:04
Lab No.: 98-35391
Report Date: 06/03/98   09:39
Extraction Method: EPA 5030
Sample Matrix: WATER
File: /chem/IONTRAP2.i/vc060198.b/9835391s.d

Remarks: These compounds were spiked into the sample matrix to determine if the sample matrix contributes bias to the analytical results and to monitor the accuracy of the methodology.

CONCENTRATION UNITS = ug/L (ppb)

Spike Compound	Spike Added	Sample Concentration	Matrix Spike Concentration	MS %Rec	QC Limits
Carbon Tetrachloride	5.00	<0.500	4.65	93	60--130
Chlorobenzene	5.00	<0.500	5.08	102	60--130
1,2-Dichlorobenzene	5.00	<0.500	4.47	89	60--130
1,4-Dichlorobenzene	5.00	<0.500	4.21	84	60--130
1,2-Dichloroethane	5.00	<0.500	5.93	119	60--130
1,1-Dichloroethene	5.00	<0.500	4.85	97	60--130
cis-1,2-Dichloroethene	5.00	<0.500	5.04	101	60--130
trans-1,2-Dichloroethene	5.00	<0.500	4.70	94	60--130
1,2-Dichloropropane	5.00	<0.500	5.13	103	60--130
Methylene Chloride	5.00	<0.500	4.68	94	60--130
Tetrachloroethene	5.00	<0.500	4.73	95	60--130
1,1,1-Trichloroethane	5.00	<0.500	4.55	91	60--130
1,1,2-Trichloroethane	5.00	<0.500	5.13	103	60--130
Trichloroethene	5.00	<0.500	4.55	91	60--130
Bromodichloromethane	5.00	<0.500	5.38	108	60--130
Bromoform	5.00	<0.500	5.23	105	60--130
Chlorodibromomethane	5.00	<0.500	5.44	109	60--130
Chloroform	5.00	<0.500	5.04	101	60--130
2-Chlorotoluene	5.00	<0.500	4.00	80	60--130
1,3-Dichlorobenzene	5.00	<0.500	4.79	96	60--130
1,1-Dichloroethane	5.00	<0.500	4.63	93	60--130
cis-1,3-Dichloropropene	5.00	<0.500	5.16	103	60--130
trans-1,3-Dichloropropene	5.00	<0.500	5.21	104	60--130
1,1,2,2-Tetrachloroethane	5.00	<0.500	4.77	95	60--130

REPORT COMMENTS: None

Analyst: ________   Reviewing Supervisor: ________

EPA METHOD 624 MATRIX SPIKE REPORT

Quality Control Sample: Matrix Spike Analysis 01-JUN-1998 16:41
Lab No.: 98-35401
Report Date: 06/03/98 09:39
Extraction Method: EPA 5030
Sample Matrix: WATER
File: /chem/IONTRAP2.i/vc060198.b/9835401s.d

Remarks: These compounds were spiked into the sample matrix to determine if the sample matrix contributes bias to the analytical results and to monitor the accuracy of the methodology.

CONCENTRATION UNITS = ug/L (ppb)

Spike Compound	Spike Added	Sample Concentration	Matrix Spike Concentration	MS %Rec	QC Limits
Carbon Tetrachloride	5.00	<0.500	4.88	98	60--130
Chlorobenzene	5.00	<0.500	4.83	97	60--130
1,2-Dichlorobenzene	5.00	<0.500	5.19	104	60--130
1,4-Dichlorobenzene	5.00	<0.500	4.95	99	60--130
1,2-Dichloroethane	5.00	<0.500	5.38	108	60--130
1,1-Dichloroethene	5.00	<0.500	4.97	99	60--130
cis-1,2-Dichloroethene	5.00	<0.500	5.13	103	60--130
trans-1,2-Dichloroethene	5.00	<0.500	4.91	98	60--130
1,2-Dichloropropane	5.00	<0.500	5.08	102	60--130
Methylene Chloride	5.00	<0.500	4.91	98	60--130
Tetrachloroethene	5.00	<0.500	4.80	96	60--130
1,1,1-Trichloroethane	5.00	<0.500	4.81	96	60--130
1,1,2-Trichloroethane	5.00	<0.500	5.14	103	60--130
Trichloroethene	5.00	<0.500	4.63	93	60--130
Bromodichloromethane	5.00	<0.500	5.49	110	60--130
Bromoform	5.00	<0.500	5.26	105	60--130
Chlorodibromomethane	5.00	<0.500	5.40	108	60--130
Chloroform	5.00	<0.500	5.23	105	60--130
2-Chlorotoluene	5.00	<0.500	4.66	93	60--130
1,3-Dichlorobenzene	5.00	<0.500	4.92	98	60--130
1,1-Dichloroethane	5.00	<0.500	4.95	99	60--130
cis-1,3-Dichloropropene	5.00	<0.500	5.29	106	60--130
trans-1,3-Dichloropropene	5.00	<0.500	5.27	105	60--130
1,1,2,2-Tetrachloroethane	5.00	<0.500	5.46	109	60--130

REPORT COMMENTS: None

Analyst:______ Reviewing Supervisor:______

EPA METHOD 624 BLANK SPIKE REPORT

Quality Control Sample: Certified Reference Sample Analysis 28-MAY-1998 23:18
Report Date: 06/04/98 14:13
Extraction Method: EPA 5030
Sample Matrix: WATER
File: /chem/IONTRAP2.i/vc052898.b/qcs0528c.d

Remarks: This certified reference sample was spiked into a blank sample matrix then extracted and analyzed with your set of samples to determine if the methodology is in control and to monitor the laboratory's ability to produce accurate results.

	CONCENTRATION UNITS = ug/L (ppb)			
Spike Compound	Added	Measured	%Rec	QC Limits
Carbon Tetrachloride	5.00	4.81	96	70--130
Chlorobenzene	5.00	4.79	96	70--130
1,2-Dichlorobenzene	5.00	4.85	97	70--130
1,4-Dichlorobenzene	5.00	4.70	94	70--130
1,2-Dichloroethane	5.00	5.17	103	70--130
1,1-Dichloroethene	5.00	5.10	102	70--130
cis-1,2-Dichloroethene	5.00	4.78	96	70--130
trans-1,2-Dichloroethene	5.00	4.86	97	70--130
1,2-Dichloropropane	5.00	4.86	97	70--130
Methylene Chloride	5.00	4.89	98	70--130
Tetrachloroethene	5.00	4.80	96	70--130
1,1,1-Trichloroethane	5.00	4.73	95	70--130
1,1,2-Trichloroethane	5.00	4.60	92	70--130
Trichloroethene	5.00	4.65	93	70--130
Vinyl Chloride	5.00	5.91	118	70--130
Bromodichloromethane	5.00	4.71	94	70--130
Bromoform	5.00	4.67	93	70--130
Chlorodibromomethane	5.00	4.61	92	70--130
Chloroform	5.00	4.64	93	70--130
Bromomethane	5.00	4.43	89	70--130
Chloroethane	5.00	4.92	98	70--130
Chloromethane	5.00	6.41	128	70--130
2-Chlorotoluene	5.00	5.06	101	70--130
1,3-Dichlorobenzene	5.00	4.84	97	70--130
Dichlorodifluoromethane	5.00	5.07	101	70--130
1,1-Dichloroethane	5.00	4.85	97	70--130
cis-1,3-Dichloropropene	5.00	4.47	89	70--130
trans-1,3-Dichloropropene	5.00	4.35	87	70--130
Fluorotrichloromethane	5.00	5.27	105	70--130
1,1,2,2-Tetrachloroethane	5.00	4.64	93	70--130

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	9.88	99	80--120
Toluene d8	10.0	10.2	102	80--120
p-Bromofluorobenzene	10.0	10.3	103	80--120

REPORT COMMENTS: None

Analyst:________ Reviewing Supervisor:________

Lab No(s). 98-35389 - 98-35391

QUALITY ASSURANCE DATA PACKAGE

This report includes the results of quality assurance tests performed with the sample analyses. They are performed to determine if the methodology is in control and to monitor the laboratory's ability to produce accurate and precise results.

		Duplicate Analysis --- mg/l (ppm) ---		Spiked Analysis	Blank	------ Reference ------		
nstituents		Original	Duplicate	% Recovery	Analysis, mg/l ppm	Sample Analysis, mg/l ppm	Accept Range mg/l ppm	Date Analyzed
lfate		10	10	100	<1	126	112-138	29-MAY-98
trate as N		0.63	0.65	104	<0.05	2.53	2.04-2.56	22-MAY-98
thane, Headspace	ppm	N/A	N/A	N/A	<1	15	13-15	22-MAY-98
tals Analysis								
rrous Iron		<0.1	<0.1	107	<0.1	2.0	1.8 - 2.2	22-MAY-98

Lab Nos.: 98-35389 - 98-35402

Date: 22-MAY-98

Received by: Pam Fink

Logged In by: Pam Fink

SAMPLE CONDITION QA/QC REPORT

This report provides information about the condition of the sample(s) and associated sample custody information on receipt at the laboratory.

Chain of Custody Form Completed & Signed	Yes	Comments:
Chain of Custody Seal	Yes	Comments:
Intact	Yes	Comments:
Signature Match Chain of Custody vs. Seal	Yes	Comments:
Samples Received Cold	Yes	Comments:
Samples Received Within Holding Time	Yes	Comments:
Samples Received in Proper Containers	Yes	Comments:
Samples Received Properly Preserved	N/A	Comments:

Samples requiring analysis for volatile organics are tested for proper preservation at the time of analysis. Any preservation problems encountered for these samples are noted on the analytical parameter report pages.

Client notified about sample discrepancies:

Who: By: Date/Time:

Method of Shipping: Greyhound 130 359 505 1

Additional comments:

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FAX (406) 252-6069 • 1-800-735-4489 • E-MAIL eli@energylab.com

LABORATORY REPORT

To : Envirocon, Inc.
Address : Mike McKinsey
P.O. Box 8243
Missoula, MT 59807

Lab No. : 35389 dc
Date : 6/09/98

GENERAL INFORMATION:

Laboratory No. : 35389
Sample Type : WATER
Sample Point : 140101-1618
Sample Date : 5/21/98
Sample Time :
Sample Received : 5/22/98

#2

LABORATORY DATA:

		Result		Date Analyzed
Sulfate	(mg/l)	44		5/29/98
Nitrogen, Nitrate	(mg/l)	1.48		5/22/98
Ferrous Iron	(mg/l)	<0.1		5/22/98
Methane in headspace	(ppm)	3	(1)	5/22/98

(1) Volume of water in vial = 36 ml

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LABORATORY REPORT

To : Envirocon, Inc.
Address : Mike McKinsey
P.O. Box 8243
Missoula, MT 59807

Lab No. : 35390 dc
Date : 6/09/98

GENERAL INFORMATION:

Laboratory No. : 35390
Sample Type : WATER
Sample Point : 140101-1619
Sample Date : 5/21/98
Sample Time :
Sample Received : 5/22/98

L-88-13

LABORATORY DATA:

		Result		Date Analyzed
Sulfate	(mg/l)	46		5/29/98
Nitrogen,Nitrate	(mg/l)	0.67		5/22/98
Ferrous Iron	(mg/l)	<0.1		5/22/98
Methane in headspace	(ppm)	3	(1)	5/22/98

(1) Volume of water in vial = 33 ml

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LABORATORY REPORT

To : Envirocon, Inc.
Address : Mike McKinsey
P.O. Box 8243
Missoula, MT 59807

Lab No. : 35391 dc
Date : 6/09/98

GENERAL INFORMATION:

Laboratory No. : 35391
Sample Type : WATER
Sample Point : 140101-1620
Sample Date : 5/21/98
Sample Time : 1200
Sample Received : 5/22/98

L-87-4

LABORATORY DATA:

	Result		Date Analyzed
Sulfate..(mg/l)........	41		5/29/98
Nitrogen,Nitrate...................................(mg/l)........	0.73		5/22/98
Ferrous Iron.......................................(mg/l)........	<0.1		5/22/98
Methane in headspace...............................(ppm).........	6	(1)	5/22/98

(1) Volume of water in vial = 33 ml

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Client: Envirocon, Inc.
Date Sampled: 21-MAY-98 17:45
Date Received: 29-MAY-98
Analysis Date: 04-JUN-1998 23:14
File: /chem/IONTRAP2.i/vc060498.b/9836235a.d
Project Info: Livingston Rail Yard
Sample Info: 140101-16[illegible] 26 #6

Lab No.: 98-36235
Report Date: 06/08/98 10:44
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon Tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	<0.50	U
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene Chloride	75-09-2	<0.50	U
Tetrachloroethene	**127-18-4**	**0.74**	
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	<0.50	U
Vinyl Chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<5.0	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	10.1	101	80--120
Toluene d8	10.0	9.20	92	80--120
p-Bromofluorobenzene	10.0	10.2	102	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:
U= Indicates compound was analyzed for but not detected.

REPORT COMMENTS: None

Analyst: HJC

Reviewing Supervisor:

ENERGY LABORATORIES

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Client: Envirocon, Inc.
Date Sampled: 27-MAY-98 16:45
Date Received: 29-MAY-98
Analysis Date: 06-JUN-1998 15:03
File: /chem/IONTRAP2.i/vc060698.b/9836236a.d
Project Info: Livingston Rail Yard
Sample Info: 140101-16~~2[illegible]~~27 89-3

Lab No.: 98-36236
Report Date: 06/10/98 10:41
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon Tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	<0.50	U
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene Chloride	75-09-2	<0.50	U
Tetrachloroethene	**127-18-4**	**134**	**D**
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	**79-01-6**	**0.70**	
Vinyl Chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<5.0	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	10.6	106	80--120
Toluene d8	10.0	9.08	91	80--120
p-Bromofluorobenzene	10.0	10.2	102	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.
D= Value was derived from a 20 times dilution.

REPORT COMMENTS: None

Analyst: ______ Reviewing Supervisor: ______

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FAX (406) 252-6069 • 1-800-735-4489 • E-MAIL eli@energylab.com

Client: Envirocon, Inc.
Date Sampled: 28-MAY-98 09:20
Date Received: 29-MAY-98
Analysis Date: 06-JUN-1998 17:31
File: /chem/IONTRAP2.i/vc060698.b/9836239a.d
Project Info: Livingston Rail Yard
Sample Info: 140101-162[illegible]28

L-87-2

Lab No.: 98-36239
Report Date: 06/10/98 10:57
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon Tetrachloride	56-23-5	<0.50	U
Chlorobenzene	**108-90-7**	**31**	**D**
1,2-Dichlorobenzene	**95-50-1**	**1.9**	
1,4-Dichlorobenzene	**106-46-7**	**3.3**	
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	**156-59-2**	**19**	**D**
trans-1,2-Dichloroethene	**156-60-5**	**1.2**	
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene Chloride	75-09-2	<0.50	U
Tetrachloroethene	**127-18-4**	**<0.50**	**0.22J**
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	**79-01-6**	**11**	
Vinyl Chloride	**75-01-4**	**18**	**D**
2-Chloroethylvinyl ether	110-75-8	<5.0	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	**95-49-8**	**40**	**D**
1,3-Dichlorobenzene	**541-73-1**	**<0.50**	**0.48J**
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	10.8	108	80--120
Toluene d8	10.0	10.1	101	80--120
p-Bromofluorobenzene	10.0	9.61	96	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.
D= Value was derived from a 5 times dilution.
J= Estimated value. Present, but less than the limit of quantitation.

REPORT COMMENTS: None

Analyst: HJC Reviewing Supervisor:

ENERGY LABORATORIES

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FAX (406) 252-6069 • 1-800-735-4489 • E-MAIL eli@energylab.com

Client: Envirocon, Inc.
Date Sampled: 28-MAY-98 10:20
Date Received: 29-MAY-98
Analysis Date: 06-JUN-98 18:21
File: /chem/IONTRAP2.i/vc060698.b/9836240a.d
Project Info: Livingston Rail Yard
Sample Info: 140101-162[illegible]29

Lab No.: 98-36240
Report Date: 06/10/98 10:57
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

L-87-7

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon Tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	<0.50	U
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene Chloride	75-09-2	<0.50	U
Tetrachloroethene	127-18-4	<0.50	U
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	<0.50	U
Vinyl Chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<5.0	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	**95-49-8**	**0.98**	
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	10.7	107	80--120
Toluene d8	10.0	10.4	104	80--120
p-Bromofluorobenzene	10.0	10.1	101	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

REPORT COMMENTS: None

Analyst: ______ Reviewing Supervisor: ______

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Client: Envirocon, Inc.
Date Sampled: 28-MAY-98 10:30
Date Received: 29-MAY-98
Analysis Date: 06-JUN-1998 15:51
File: /chem/IONTRAP2.i/vc060698.b/9836237a.d
Project Info: Livingston Rail Yard
Sample Info: 140101-162~~8~~30 L-87-7 Duplicate (field)

Lab No.: 98-36237
Report Date: 06/10/98 10:57
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon Tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	<0.50	U
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene Chloride	75-09-2	<0.50	U
Tetrachloroethene	**127-18-4**	**0.85**	
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	<0.50	U
Vinyl Chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<5.0	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	**95-49-8**	**0.87**	
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	11.0	110	80--120
Toluene d8	10.0	10.2	102	80--120
p-Bromofluorobenzene	10.0	9.81	98	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:
U= Indicates compound was analyzed for but not detected.

REPORT COMMENTS: None

Analyst: ____ Reviewing Supervisor: ____

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Client: Envirocon, Inc.
Date Sampled: 28-MAY-98 11:30
Date Received: 29-MAY-98
Analysis Date: 09-JUN-1998 14:48
File: /chem/IONTRAP2.i/vc060998.b/9836242b.d
Project Info: Livingston Rail Yard
Sample Info: 140101-16293

Lab No.: 98-36242
Report Date: 06/12/98 09:59
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

L-87-8

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon Tetrachloride	56-23-5	<2.5	U
Chlorobenzene	108-90-7	<2.5	U
1,2-Dichlorobenzene	95-50-1	<2.5	U
1,4-Dichlorobenzene	106-46-7	<2.5	U
1,2-Dichloroethane	107-06-2	<2.5	U
1,1-Dichloroethene	75-35-4	<2.5	U
cis-1,2-Dichloroethene	**156-59-2**	**<2.5**	**2.2J**
trans-1,2-Dichloroethene	156-60-5	<2.5	U
1,2-Dichloropropane	78-87-5	<2.5	U
Methylene Chloride	75-09-2	<2.5	U
Tetrachloroethene	**127-18-4**	**3.4**	
1,1,1-Trichloroethane	71-55-6	<2.5	U
1,1,2-Trichloroethane	79-00-5	<2.5	U
Trichloroethene	**79-01-6**	**3.8**	
Vinyl Chloride	75-01-4	<2.5	U
2-Chloroethylvinyl ether	110-75-8	<25	U
Bromodichloromethane	75-27-4	<2.5	U
Bromoform	75-25-2	<2.5	U
Chlorodibromomethane	124-48-1	<2.5	U
Chloroform	67-66-3	<2.5	U
Bromomethane	74-83-9	<2.5	U
Chloroethane	75-00-3	<2.5	U
Chloromethane	74-87-3	<2.5	U
2-Chlorotoluene	95-49-8	<2.5	U
1,3-Dichlorobenzene	541-73-1	<2.5	U
Dichlorodifluoromethane	75-71-8	<2.5	U
1,1-Dichloroethane	75-34-3	<2.5	U
cis-1,3-Dichloropropene	10061-01-5	<2.5	U
trans-1,3-Dichloropropene	10061-02-6	<2.5	U
Fluorotrichloromethane	75-69-4	<2.5	U
1,1,2,2-Tetrachloroethane	79-34-5	<2.5	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	50.0	58.8	118	80--120
Toluene d8	50.0	52.0	104	80--120
p-Bromofluorobenzene	50.0	44.3	89	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.
J= Estimated value. Present, but less than the limit of quantitation.

REPORT COMMENTS: Practical quantitation limit reflects a 5 times dilution. The sample was diluted due to non-target compound sample matrix interference.

Analyst: HJC Reviewing Supervisor:

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Client: Envirocon, Inc.
Date Sampled: 28-MAY-98 13:45
Date Received: 29-MAY-98
Analysis Date: 06-JUN-1998 19:10
File: /chem/IONTRAP2.i/vc060698.b/9836241a.d
Project Info: Livingston Rail Yard
Sample Info: 140101-163~~3~~32 L-88-10

Lab No.: 98-36241
Report Date: 06/10/98 10:57
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon Tetrachloride	56-23-5	<0.50	U
Chlorobenzene	**108-90-7**	**5.2**	
1,2-Dichlorobenzene	**95-50-1**	**0.55**	
1,4-Dichlorobenzene	**106-46-7**	**0.96**	
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	**156-59-2**	**13**	
trans-1,2-Dichloroethene	**156-60-5**	**<0.50**	**0.25J**
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene Chloride	75-09-2	<0.50	U
Tetrachloroethene	**127-18-4**	**27**	**D**
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	**79-01-6**	**9.1**	
Vinyl Chloride	**75-01-4**	**0.84**	
2-Chloroethylvinyl ether	110-75-8	<5.0	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	**95-49-8**	**0.62**	
1,3-Dichlorobenzene	**541-73-1**	**<0.50**	**0.19J**
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	10.5	105	80--120
Toluene d8	10.0	10.4	104	80--120
p-Bromofluorobenzene	10.0	9.97	100	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.
D= Value was derived from a 5 times dilution.
J= Estimated value. Present, but less than the limit of quantitation.

REPORT COMMENTS: None

Analyst: ____ Reviewing Supervisor: ____

ENERGY LABORATORIES

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Client: Envirocon, Inc.
Date Sampled: 28-MAY-98 15:08
Date Received: 29-MAY-98
Analysis Date: 06-JUN-98 16:41
File: /chem/IONTRAP2.i/vc060698.b/9836238a.d
Project Info: Livingston Rail Yard
Sample Info: 140101-16~~23~~ 33 Trip Blank

Lab No.: 98-36238
Report Date: 06/10/98 10:57
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon Tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	<0.50	U
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene Chloride	75-09-2	<0.50	U
Tetrachloroethene	127-18-4	<0.50	U
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	<0.50	U
Vinyl Chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<5.0	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	10.6	106	80--120
Toluene d8	10.0	10.1	101	80--120
p-Bromofluorobenzene	10.0	9.97	100	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

REPORT COMMENTS: None

Analyst: HJC Reviewing Supervisor:

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Client: Envirocon, Inc.
Date Sampled: 28-MAY-98 15:08
Date Received: 29-MAY-98
Analysis Date: 09-JUN-1998 10:47
File: /chem/IONTRAP2.i/vc060998.b/9836238b.d
Project Info: Livingston Rail Yard
Sample Info: 140101-16333

Lab No.: 98-36238 Duplicate
Report Date: 06/12/98 09:59
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

Trip Blank Lab Dup

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon Tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	<0.50	U
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene Chloride	75-09-2	<0.50	U
Tetrachloroethene	127-18-4	<0.50	U
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	<0.50	U
Vinyl Chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<5.0	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	10.3	103	80--120
Toluene d8	10.0	9.67	97	80--120
p-Bromofluorobenzene	10.0	9.54	95	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:
U= Indicates compound was analyzed for but not detected.

REPORT COMMENTS: None

Analyst:

Reviewing Supervisor:

EPA METHOD 624 MATRIX SPIKE REPORT

Quality Control Sample: Matrix Spike Analysis 09-JUN-1998 12:22
Lab No.: 98-36240
Report Date: 06/10/98 14:05
Extraction Method: EPA 5030
Sample Matrix: WATER
File: /chem/IONTRAP2.i/vc060998.b/9836240s.d

Remarks: These compounds were spiked into the sample matrix to determine if the sample matrix contributes bias to the analytical results and to monitor the accuracy of the methodology.

CONCENTRATION UNITS = ug/L (ppb)

Spike Compound	Spike Added	Sample Concentration	Matrix Spike Concentration	MS %Rec	QC Limits
Carbon Tetrachloride	5.00	<0.500	4.83	97	60--140
Chlorobenzene	5.00	<0.500	5.26	105	60--140
1,2-Dichlorobenzene	5.00	<0.500	3.86	77	60--140
1,4-Dichlorobenzene	5.00	<0.500	3.40	68	60--140
1,2-Dichloroethane	5.00	<0.500	5.35	107	60--140
1,1-Dichloroethene	5.00	<0.500	5.31	106	60--140
cis-1,2-Dichloroethene	5.00	<0.500	5.05	101	60--140
trans-1,2-Dichloroethene	5.00	<0.500	5.02	100	60--140
1,2-Dichloropropane	5.00	<0.500	5.03	101	60--140
Methylene Chloride	5.00	<0.500	5.33	107	60--140
Tetrachloroethene	5.00	<0.500	5.20	104	60--140
1,1,1-Trichloroethane	5.00	<0.500	4.84	97	60--140
1,1,2-Trichloroethane	5.00	<0.500	5.53	111	60--140
Trichloroethene	5.00	<0.500	4.74	95	60--140
Vinyl Chloride	5.00	<0.500	5.85	117	60--140
Bromodichloromethane	5.00	<0.500	5.12	102	60--140
Bromoform	5.00	<0.500	4.49	90	60--140
Chlorodibromomethane	5.00	<0.500	4.98	100	60--140
Chloroform	5.00	<0.500	4.91	98	60--140
Bromomethane	5.00	<0.500	4.47	89	60--140
Chloroethane	5.00	<0.500	4.24	85	60--140
Chloromethane	5.00	<0.500	6.03	121	60--140
2-Chlorotoluene	5.00	0.98	5.79	96	60--140
1,3-Dichlorobenzene	5.00	<0.500	5.27	105	60--140
Dichlorodifluoromethane	5.00	<0.500	4.74	95	60--140
1,1-Dichloroethane	5.00	<0.500	5.26	105	60--140
cis-1,3-Dichloropropene	5.00	<0.500	5.05	101	60--140
trans-1,3-Dichloropropene	5.00	<0.500	5.19	104	60--140
Fluorotrichloromethane	5.00	<0.500	5.31	106	60--140
1,1,2,2-Tetrachloroethane	5.00	<0.500	5.32	106	60--140

REPORT COMMENTS: None

Analyst: ____________ Reviewing Supervisor: ____________

Quality Control Sample: Laboratory Reagent Blank 04-JUN-1998 19:27
Report Date: 06/08/98 10:46
Extraction Method: EPA 5030
Sample Matrix: WATER
File: /chem/IONTRAP2.i/vc060498.b/blk0604b.d
Remarks: This Laboratory Reagent Blank Quality Control Sample was extracted and analyzed with your set of samples to determine if method analytes or other interferences are present in the laboratory environment, the reagents, or the apparatus.

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon Tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	<0.50	U
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene Chloride	75-09-2	<0.50	U
Tetrachloroethene	127-18-4	<0.50	U
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	<0.50	U
Vinyl Chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<5.0	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	9.69	97	80--120
Toluene d8	10.0	9.65	97	80--120
p-Bromofluorobenzene	10.0	9.98	100	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

REPORT COMMENTS: None

Analyst: ______ Reviewing Supervisor: ______

Quality Control Sample: Laboratory Reagent Blank 06-JUN-1998 12:09
Report Date: 06/10/98 10:57
Extraction Method: EPA 5030
Sample Matrix: WATER
File: /chem/IONTRAP2.i/vc060698.b/blk0606a.d
Remarks: This Laboratory Reagent Blank Quality Control Sample was extracted and analyzed with your set of samples to determine if method analytes or other interferences are present in the laboratory environment, the reagents, or the apparatus.

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon Tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	<0.50	U
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene Chloride	75-09-2	<0.50	U
Tetrachloroethene	127-18-4	<0.50	U
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	<0.50	U
Vinyl Chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<5.0	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	10.9	109	80--120
Toluene d8	10.0	10.1	101	80--120
p-Bromofluorobenzene	10.0	9.74	97	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

REPORT COMMENTS: None

Analyst: _______ Reviewing Supervisor: _______

ENERGY LABORATORIES

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FAX (406) 252-6069 • 1-800-735-4489 • E-MAIL eli@energylab.com

LABORATORY REPORT

To : Envirocon, Inc.
Address : Mike McKinsey
P.O. Box 8243
Missoula, MT 59807

Lab No. : 98-36239 fs
Date : 6/16/98

GENERAL INFORMATION:

Laboratory No. : 98-36239
Sample Type : WATER
Sample Point : 140101-162[illegible] BL-87-2
Sample Date : 5/28/98
Sample Time : 0920
Sample Received : 5/29/98

LABORATORY DATA:

		Result		Date Analyzed
Sulfate	(mg/l)	18		6/03/98
Nitrogen.Nitrate	(mg/l)	<0.05		5/29/98
Ferrous Iron	(mg/l)	1.4		5/29/98
Methane in headspace	(ppm)	2930	(1)	5/29/98

(1) Volume of water in vial: 31 ml

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LABORATORY REPORT

To : Envirocon, Inc.
Address : Mike McKinsey
P.O. Box 8243
Missoula, MT 59807

Lab No. : 98-36240 fs
Date : 6/16/98

GENERAL INFORMATION:

Laboratory No. :	98-36240
Sample Type :	WATER
Sample Point :	140101-1629L-87-7
Sample Date :	5/28/98
Sample Time :	1020
Sample Received :	5/29/98

LABORATORY DATA:

		Result		Date Analyzed
Sulfate	(mg/l)	19		6/03/98
Nitrogen,Nitrate	(mg/l)	<0.05		5/29/98
Ferrous Iron	(mg/l)	0.3		5/29/98
Methane in headspace	(ppm)	2930	(1)	5/29/98

(1) Volume of water in vial: 34 ml

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LABORATORY REPORT

To : Envirocon, Inc.
Address : Mike McKinsey
P.O. Box 8243
Missoula, MT 59807

Lab No. : 98-36241 fs
Date : 6/16/98

GENERAL INFORMATION:

Laboratory No. : 98-36241
Sample Type : WATER
Sample Point : 140101-16332 L-88-10
Sample Date : 5/28/98
Sample Time : 1345
Sample Received : 5/29/98

LABORATORY DATA:

		Result		Date Analyzed
Sulfate	(mg/l)	55		6/03/98
Nitrogen,Nitrate	(mg/l)	0.26		5/29/98
Ferrous Iron	(mg/l)	<0.1		5/29/98
Methane in headspace	(ppm)	6	(1)	5/29/98

(1) Volume of water in vial: 34 ml

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LABORATORY REPORT

To : Envirocon, Inc.
Address : Mike McKinsey
P.O. Box 8243
Missoula, MT 59807

Lab No. : 98-36242 fs
Date : 6/16/98

GENERAL INFORMATION:

Laboratory No. : 98-36242
Sample Type : WATER
Sample Point : 140101-16231 L-87-8
Sample Date : 5/28/98
Sample Time : 1130
Sample Received : 5/29/98

LABORATORY DATA:

		Result		Date Analyzed
Sulfate	(mg/l)	40		6/03/98
Nitrogen,Nitrate	(mg/l)	0.24		5/29/98
Methane in headspace	(ppm)	481	(1)	5/29/98

(1) Volume of water in vial: 33 ml

Lab No(s). 98-36239 - 98-36242

QUALITY ASSURANCE DATA PACKAGE

This report includes the results of quality assurance tests performed with the sample analyses. They are performed to determine if the methodology is in control and to monitor the laboratory's ability to produce accurate and precise results.

				Spiked		------ Reference ------		
		Duplicate Analysis --- mg/l (ppm) ---		Analysis	Blank	Sample	Accept	
				%	Analysis,	Analysis,	Range	Date
C nstituents		Original	Duplicate	Recovery	mg/l ppm	mg/l ppm	mg/l ppm	Analyzed
S lfate		54	54	101	<1	126	112-138	03-JUN-98
N trate as N		<0.05	<0.05	109	<0.05	2.40	2.40-2.56	29-MAY-98
thane, Headspace	ppm	N/A	N/A	N/A	<1	14	13-15	29-MAY-98
M tals Analysis								
rrous Iron		1.4	1.4	100	<0.1	2.0	1.8 - 2.2	29-MAY-98

Lab Nos.: 98-36235 - 98-36242
Date: 29-MAY-98
Received by: Randa Hoelscher
Logged In by: Randa Hoelscher

SAMPLE CONDITION QA/QC REPORT

This report provides information about the condition of the sample(s) and associated sample custody information on receipt at the laboratory.

Chain of Custody Form Completed & Signed	Yes	Comments:
Chain of Custody Seal	Yes	Comments:
Intact	Yes	Comments:
Signature Match Chain of Custody vs. Seal	Yes	Comments:
Samples Received Cold	Yes	Comments:
Samples Received Within Holding Time	Yes	Comments:
Samples Received in Proper Containers	Yes	Comments:
Samples Received Properly Preserved	Yes	Comments:

Samples requiring analysis for volatile organics are tested for proper preservation at the time of analysis. Any preservation problems encountered for these samples are noted on the analytical parameter report pages.

Client notified about sample discrepancies:

Who: By: Date/Time:

Method of Shipping: Greyhound 130 359 532 6

Additional comments:

ENERGY LABORATORIES, INC
P.O. Box 30916   1120 South 27th Street
Billings, Montana 59107

toll-free 800-735-4489
voice 406-252-6325
fax 406-252-6069

CHAIN OF CUSTODY RECORD

PLEASE PRINT OR TYPE ALL INFORMATION EXCEPT SIGNATURES

P.O. #

Project Name / Address: Livingston Rail Yard

Contact Name & Phone (406) 523-1167: Mike McKinsey

Sampler's signature: Michael McKinsey

Invoice to: Envirocon (406) 523-1150
500 Taylor St
Missoula, MT 59802

Report to:

DATE	TIME	composite	grab sample	SAMPLE I.D.	number of containers / Sample Type: A W S V U O Air Water Soils/solids Vegetation Urine Other	601	Nitrate Only	Sulfate	Methane	Ferrous Iron					Comments, Special Instructions, etc.
5/21/98	1745			140101- 1624	2W	X									
5/27/98	1645			140101- 1625	2W	X									
5/28/98	920			140101- 1626	6W	X	X	X	X	X					
	1020			- 1627	6W	X	X	X	X	X					
	~~1130~~ 1030			- 1628	2W	X									
	~~1345~~ 1140			- 1629	5W	X	X	X	X						
	1345			- 1630	6W	X	X	X	X	X					
	1508			- 1631	2W	X									

	Relinquished (signature)	Date	Time	Received by: (signature)		Relinquished (signature)	Date	Time	Received by (signature):
1.	Michael McKinsey	5/28/98	1515		3.				

	Relinquished (signature)	Date	Time	Received by: (signature)		Relinquished (signature)	Date	Time	Received for laboratory by (signature):
2.					4.		[illegible]	[illegible]	

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June 17, 1998

Michael McKinsey
Envirocon, Inc.
P.O. Box 8243
Missoula, MT 59807

Dear Michael:

On May 29, 1998, these samples, represented by our laboratory numbers 98-36235 through 98-36242, were submitted to our laboratory for analysis.

The test results and quality assurance were reviewed and approved by the undersigned.

Reviewed by:______________________

ENERGY LABORATORIES

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Client: Envirocon, Inc.
Date Sampled: 28-MAY-98 17:15
Date Received: 29-MAY-98
Analysis Date: 06-JUN-98 20:47
File: /chem/IONTRAP2.i/vc060698.b/9836366a.d
Project Info: Livingston Rail Yard
Sample Info: 140101-16234

L-87-3

Lab No.: 98-36366
Report Date: 06/10/98 10:57
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon Tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	**156-59-2**	**7.9**	
trans-1,2-Dichloroethene	**156-60-5**	**<0.50**	**0.44J**
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene Chloride	75-09-2	<0.50	U
Tetrachloroethene	**127-18-4**	**49**	**D**
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	**79-01-6**	**6.8**	
Vinyl Chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<5.0	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	10.6	106	80--120
Toluene d8	10.0	10.1	101	80--120
p-Bromofluorobenzene	10.0	9.98	100	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.
D= Value was derived from a 10 times dilution.
J= Estimated value. Present, but less than the limit of quantitation.

REPORT COMMENTS: None

Analyst: ______ Reviewing Supervisor: ______

ENERGY LABORATORIES

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FAX (406) 252-6069 • 1-800-735-4489 • E-MAIL eli@energylab.com

Client: Envirocon, Inc.
Date Sampled: 28-MAY-98 18:40
Date Received: 29-MAY-98
Analysis Date: 06-JUN-1998 21:38
File: /chem/IONTRAP2.i/vc060698.b/9836368a.d
Project Info: Livingston Rail Yard
Sample Info: 140101-163~~3~~35

Lab No.: 98-36368
Report Date: 06/10/98 10:58
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

92-1

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon Tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	**156-59-2**	**12**	
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene Chloride	75-09-2	<0.50	U
Tetrachloroethene	**127-18-4**	**168**	**D**
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	**79-01-6**	**1.1**	
Vinyl Chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<5.0	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	11.7	117	80--120
Toluene d8	10.0	10.2	102	80--120
p-Bromofluorobenzene	10.0	10.6	106	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.
D= Value was derived from a 10 times dilution.

REPORT COMMENTS: None

Analyst: HG
Reviewing Supervisor:

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Client: Envirocon, Inc.
Date Sampled: 29-MAY-98 09:50
Date Received: 29-MAY-98
Analysis Date: 06-JUN-1998 22:27
File: /chem/IONTRAP2.i/vc060698.b/9836369a.d
Project Info: Livingston Rail Yard
Sample Info: 140101-16[illegible]3i

Lab No.: 98-36369
Report Date: 06/10/98 10:58
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

92-4

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon Tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	**156-59-2**	**1.4**	
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene Chloride	75-09-2	<0.50	U
Tetrachloroethene	**127-18-4**	**33**	**D**
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	**79-01-6**	**1.3**	
Vinyl Chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<5.0	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	10.8	108	80--120
Toluene d8	10.0	8.13	81	80--120
p-Bromofluorobenzene	10.0	8.21	82	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:
U= Indicates compound was analyzed for but not detected.
D= Value was derived from a 5 times dilution.

REPORT COMMENTS: None

Analyst: HJC

Reviewing Supervisor:

Quality Control Sample: Laboratory Reagent Blank 06-JUN-1998 12:09
Report Date: 06/10/98 10:57
Extraction Method: EPA 5030
Sample Matrix: WATER
File: /chem/IONTRAP2.i/vc060698.b/blk0606a.d
Remarks: This Laboratory Reagent Blank Quality Control Sample was extracted and analyzed with your set of samples to determine if method analytes or other interferences are present in the laboratory environment, the reagents, or the apparatus.

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Carbon Tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	<0.50	U
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene Chloride	75-09-2	<0.50	U
Tetrachloroethene	127-18-4	<0.50	U
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	<0.50	U
Vinyl Chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<5.0	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
Fluorotrichloromethane	75-69-4	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	10.9	109	80--120
Toluene d8	10.0	10.1	101	80--120
p-Bromofluorobenzene	10.0	9.74	97	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

REPORT COMMENTS: None

Analyst: HJC Reviewing Supervisor:

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Client: Envirocon, Inc.
Date Sampled: 29-MAY-98 11:55
Date Received: 29-MAY-98
Analysis Date: 05-JUN-1998 22:08
File: /chem/IONTRAP2.i/vc060598.b/9836370a.d
Project Info: Livingston Rail Yard B-Street
Sample Info: 140101-16~~35~~38

Lab No.: 98-36370
Report Date: 06/08/98 11:04
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

EPA METHOD 524.2
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	EPA MCL	RESULT	QUALIFIER
REGULATED VOLATILE ORGANIC CHEMICALS (VOC'S)				
Benzene	71-43-2	5	<0.50	U
Carbon Tetrachloride	56-23-5	5	<0.50	U
Chlorobenzene	108-90-7	100	<0.50	U
1,2-Dichlorobenzene	95-50-1	600	<0.50	U
1,4-Dichlorobenzene	106-46-7	75	<0.50	U
1,2-Dichloroethane	107-06-2	5	<0.50	U
1,1-Dichloroethene	75-35-4	7	<0.50	U
cis-1,2-Dichloroethene	156-59-2	70	<0.50	U
trans-1,2-Dichloroethene	156-60-5	100	<0.50	U
1,2-Dichloropropane	78-87-5	5	<0.50	U
Ethylbenzene	100-41-4	700	<0.50	U
Methylene Chloride	75-09-2	5	<0.50	U
Styrene	100-42-5	100	<0.50	U
Tetrachloroethene	127-18-4	5	<0.50	U
Toluene	108-88-3	1000	<0.50	U
1,2,4-Trichlorobenzene	120-82-1	70	<0.50	U
1,1,1-Trichloroethane	71-55-6	200	<0.50	U
1,1,2-Trichloroethane	79-00-5	5	<0.50	U
Trichloroethene	79-01-6	5	<0.50	U
Vinyl Chloride	75-01-4	2	<0.50	U
m+p-Xylenes	108383/106423		<0.50	U
o-Xylene	95-47-6		<0.50	U
Total Xylenes		10000	<0.50	U
REGULATED VOC'S: TRIHALOMETHANES				
Bromodichloromethane	75-27-4	Total	<0.50	U
Bromoform	75-25-2	of all	<0.50	U
Chlorodibromomethane	124-48-1	four	<0.50	U
Chloroform	67-66-3	100	<0.50	U
OTHER EPA LISTED VOC'S				
Bromobenzene	108-86-1	NR	<0.50	U
Bromochloromethane	74-97-5	NR	<0.50	U
Bromomethane	74-83-9	NR	<0.50	U
n-Butylbenzene	104-51-8	NR	<0.50	U
sec-Butylbenzene	135-98-8	NR	<0.50	U
tert-Butylbenzene	98-06-6	NR	<0.50	U
Chloroethane	75-00-3	NR	<0.50	U
Chloromethane	74-87-3	NR	<0.50	U
2-Chlorotoluene	95-49-8	NR	<0.50	U
4-Chlorotoluene	106-43-4	NR	<0.50	U
1,2-Dibromo-3-chloropropane	96-12-8	NA	<0.50	U

(report continued on page 2)

EPA METHOD 524.2
VOLATILE ORGANICS ANALYSIS REPORT (continued)

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	EPA MCL	RESULT	QUALIFIER
1,2-Dibromoethane	106-93-4	NA	<0.50	U
Dibromomethane	74-95-3	NR	<0.50	U
1,3-Dichlorobenzene	541-73-1	NR	<0.50	U
Dichlorodifluoromethane	75-71-8	NR	<0.50	U
1,1-Dichloroethane	75-34-3	NR	<0.50	U
1,1-Dichloropropene	563-58-6	NR	<0.50	U
1,3-Dichloropropane	142-28-9	NR	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	NR	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	NR	<0.50	U
2,2-Dichloropropane	594-20-7	NR	<0.50	U
Fluorotrichloromethane	75-69-4	NR	<0.50	U
Hexachlorobutadiene	87-68-3	NR	<0.50	U
Isopropylbenzene	98-82-8	NR	<0.50	U
p-Isopropyltoluene	99-87-6	NR	<0.50	U
Methyl t-butyl ether	1634-04-4	NR	<0.50	U
Naphthalene	91-20-3	NR	<0.50	U
n-Propylbenzene	103-65-1	NR	<0.50	U
1,1,1,2-Tetrachloroethane	630-20-6	NR	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	NR	<0.50	U
1,2,3-Trichlorobenzene	87-61-6	NR	<0.50	U
1,2,3-Trichloropropane	96-18-4	NR	<0.50	U
1,2,4-Trimethylbenzene	95-63-6	NR	<0.50	U
1,3,5-Trimethylbenzene	108-67-8	NR	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	10.7	107	80--120
Toluene d8	10.0	9.07	91	80--120
p-Bromofluorobenzene	10.0	9.64	96	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

NR= No currently regulated amount.

NA= Not applicable to this method. Concentrations are presented for screening purposes. For regulatory compliance, analyze using EPA method 504 which has lower detection limits.

REPORT COMMENTS: None

Analyst: Reviewing Supervisor:

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Client: Envirocon, Inc.
Date Sampled: 29-MAY-98 11:55
Date Received: 29-MAY-98
Analysis Date: 08-JUN-1998 17:39
File: /chem/IONTRAP2.i/vc060898.b/9836370b.d
Project Info: Livingston Rail Yard
Sample Info: 140101-16338

Lab No.: 98-36370 Duplicate
Report Date: 06/10/98 14:36
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

B-Street Lab Duplicate

EPA METHOD 524.2
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	EPA MCL	RESULT	QUALIFIER
REGULATED VOLATILE ORGANIC CHEMICALS (VOC'S)				
Benzene	71-43-2	5	<0.50	U
Carbon Tetrachloride	56-23-5	5	<0.50	U
Chlorobenzene	108-90-7	100	<0.50	U
1,2-Dichlorobenzene	95-50-1	600	<0.50	U
1,4-Dichlorobenzene	106-46-7	75	<0.50	U
1,2-Dichloroethane	107-06-2	5	<0.50	U
1,1-Dichloroethene	75-35-4	7	<0.50	U
cis-1,2-Dichloroethene	156-59-2	70	<0.50	U
trans-1,2-Dichloroethene	156-60-5	100	<0.50	U
1,2-Dichloropropane	78-87-5	5	<0.50	U
Ethylbenzene	100-41-4	700	<0.50	U
Methylene Chloride	75-09-2	5	<0.50	U
Styrene	100-42-5	100	<0.50	U
Tetrachloroethene	127-18-4	5	<0.50	U
Toluene	108-88-3	1000	<0.50	U
1,2,4-Trichlorobenzene	120-82-1	70	<0.50	U
1,1,1-Trichloroethane	71-55-6	200	<0.50	U
1,1,2-Trichloroethane	79-00-5	5	<0.50	U
Trichloroethene	79-01-6	5	<0.50	U
Vinyl Chloride	75-01-4	2	<0.50	U
m+p-Xylenes	108383/106423		<0.50	U
o-Xylene	95-47-6		<0.50	U
Total Xylenes		10000	<0.50	U
REGULATED VOC'S: TRIHALOMETHANES				
Bromodichloromethane	75-27-4	Total	<0.50	U
Bromoform	75-25-2	of all	<0.50	U
Chlorodibromomethane	124-48-1	four	<0.50	U
Chloroform	67-66-3	100	<0.50	U
OTHER EPA LISTED VOC'S				
Bromobenzene	108-86-1	NR	<0.50	U
Bromochloromethane	74-97-5	NR	<0.50	U
Bromomethane	74-83-9	NR	<0.50	U
n-Butylbenzene	104-51-8	NR	<0.50	U
sec-Butylbenzene	135-98-8	NR	<0.50	U
tert-Butylbenzene	98-06-6	NR	<0.50	U
Chloroethane	75-00-3	NR	<0.50	U
Chloromethane	74-87-3	NR	<0.50	U
2-Chlorotoluene	95-49-8	NR	<0.50	U
4-Chlorotoluene	106-43-4	NR	<0.50	U
1,2-Dibromo-3-chloropropane	96-12-8	NA	<0.50	U

(report continued on page 2)

Lab No.: 98-36370 Duplicate
Sample Info: 140101-1636

EPA METHOD 524.2
VOLATILE ORGANICS ANALYSIS REPORT (continued)

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	EPA MCL	RESULT	QUALIFIER
1,2-Dibromoethane	106-93-4	NA	<0.50	U
Dibromomethane	74-95-3	NR	<0.50	U
1,3-Dichlorobenzene	541-73-1	NR	<0.50	U
Dichlorodifluoromethane	75-71-8	NR	<0.50	U
1,1-Dichloroethane	75-34-3	NR	<0.50	U
1,1-Dichloropropene	563-58-6	NR	<0.50	U
1,3-Dichloropropane	142-28-9	NR	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	NR	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	NR	<0.50	U
2,2-Dichloropropane	594-20-7	NR	<0.50	U
Fluorotrichloromethane	75-69-4	NR	<0.50	U
Hexachlorobutadiene	87-68-3	NR	<0.50	U
Isopropylbenzene	98-82-8	NR	<0.50	U
p-Isopropyltoluene	99-87-6	NR	<0.50	U
Methyl t-butyl ether	1634-04-4	NR	<0.50	U
Naphthalene	91-20-3	NR	<0.50	U
n-Propylbenzene	103-65-1	NR	<0.50	U
1,1,1,2-Tetrachloroethane	630-20-6	NR	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	NR	<0.50	U
1,2,3-Trichlorobenzene	87-61-6	NR	<0.50	U
1,2,3-Trichloropropane	96-18-4	NR	<0.50	U
1,2,4-Trimethylbenzene	95-63-6	NR	<0.50	U
1,3,5-Trimethylbenzene	108-67-8	NR	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	10.4	104	80--120
Toluene d8	10.0	9.70	97	80--120
p-Bromofluorobenzene	10.0	10.2	102	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

NR= No currently regulated amount.

NA= Not applicable to this method. Concentrations are presented for screening purposes. For regulatory compliance, analyze using EPA method 504 which has lower detection limits.

REPORT COMMENTS: None

Analyst: HJC Reviewing Supervisor:

Quality Control Sample: Laboratory Reagent Blank 05-JUN-98 10:35
Report Date: 06/09/98 16:03
Extraction Method: EPA 5030
Sample Matrix: WATER
File: /chem/IONTRAP2.i/vc060598.b/blk0605a.d
Remarks: This Laboratory Reagent Blank Quality Control Sample was extracted and analyzed with your set of samples to determine if method analytes or other interferences are present in the laboratory environment, the reagents, or the apparatus.

EPA METHOD 524.2
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	EPA MCL	RESULT	QUALIFIER
REGULATED VOLATILE ORGANIC CHEMICALS (VOC'S)				
Benzene	71-43-2	5	<0.50	U
Carbon Tetrachloride	56-23-5	5	<0.50	U
Chlorobenzene	108-90-7	100	<0.50	U
1,2-Dichlorobenzene	95-50-1	600	<0.50	U
1,4-Dichlorobenzene	106-46-7	75	<0.50	U
1,2-Dichloroethane	107-06-2	5	<0.50	U
1,1-Dichloroethene	75-35-4	7	<0.50	U
cis-1,2-Dichloroethene	156-59-2	70	<0.50	U
trans-1,2-Dichloroethene	156-60-5	100	<0.50	U
1,2-Dichloropropane	78-87-5	5	<0.50	U
Ethylbenzene	100-41-4	700	<0.50	U
Methylene Chloride	75-09-2	5	<0.50	U
Styrene	100-42-5	100	<0.50	U
Tetrachloroethene	127-18-4	5	<0.50	U
Toluene	108-88-3	1000	<0.50	U
1,2,4-Trichlorobenzene	120-82-1	70	<0.50	U
1,1,1-Trichloroethane	71-55-6	200	<0.50	U
1,1,2-Trichloroethane	79-00-5	5	<0.50	U
Trichloroethene	79-01-6	5	<0.50	U
Vinyl Chloride	75-01-4	2	<0.50	U
m+p-Xylenes	108383/106423		<0.50	U
o-Xylene	95-47-6		<0.50	U
Total Xylenes		10000	<0.50	U
REGULATED VOC'S: TRIHALOMETHANES				
2-Chloroethylvinyl ether	110-75-8		<5.0	U
Bromodichloromethane	75-27-4	Total	<0.50	U
Bromoform	75-25-2	of all	<0.50	U
Chlorodibromomethane	124-48-1	four	<0.50	U
Chloroform	67-66-3	100	<0.50	U
OTHER EPA LISTED VOC'S				
Bromobenzene	108-86-1	NR	<0.50	U
Bromochloromethane	74-97-5	NR	<0.50	U
Bromomethane	74-83-9	NR	<0.50	U
n-Butylbenzene	104-51-8	NR	<0.50	U
sec-Butylbenzene	135-98-8	NR	<0.50	U
tert-Butylbenzene	98-06-6	NR	<0.50	U
Chloroethane	75-00-3	NR	<0.50	U
Chloromethane	74-87-3	NR	<0.50	U
2-Chlorotoluene	95-49-8	NR	<0.50	U
4-Chlorotoluene	106-43-4	NR	<0.50	U

(report continued on page 2)

EPA METHOD 524.2

VOLATILE ORGANICS ANALYSIS REPORT (continued)

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	EPA MCL	RESULT	QUALIFIER
1,2-Dibromo-3-chloropropane	96-12-8	NA	<0.50	U
1,2-Dibromoethane	106-93-4	NA	<0.50	U
Dibromomethane	74-95-3	NR	<0.50	U
1,3-Dichlorobenzene	541-73-1	NR	<0.50	U
Dichlorodifluoromethane	75-71-8	NR	<0.50	U
1,1-Dichloroethane	75-34-3	NR	<0.50	U
1,1-Dichloropropene	563-58-6	NR	<0.50	U
1,3-Dichloropropane	142-28-9	NR	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	NR	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	NR	<0.50	U
2,2-Dichloropropane	594-20-7	NR	<0.50	U
Fluorotrichloromethane	75-69-4	NR	<0.50	U
Hexachlorobutadiene	87-68-3	NR	<0.50	U
Isopropylbenzene	98-82-8	NR	<0.50	U
p-Isopropyltoluene	99-87-6	NR	<0.50	U
Methyl t-butyl ether	1634-04-4	NR	<0.50	U
Naphthalene	91-20-3	NR	<0.50	U
n-Propylbenzene	103-65-1	NR	<0.50	U
1,1,1,2-Tetrachloroethane	630-20-6	NR	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	NR	<0.50	U
1,2,3-Trichlorobenzene	87-61-6	NR	<0.50	U
1,2,3-Trichloropropane	96-18-4	NR	<0.50	U
1,2,4-Trimethylbenzene	95-63-6	NR	<0.50	U
1,3,5-Trimethylbenzene	108-67-8	NR	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
1,2-Dichloroethane d4	10.0	10.2	102	80--120
Toluene d8	10.0	9.83	98	80--120
p-Bromofluorobenzene	10.0	9.92	99	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

NR= No currently regulated amount.

NA= Not applicable to this method. Concentrations are presented for screening purposes. For regulatory compliance, analyze using EPA method 504 which has lower detection limits.

REPORT COMMENTS: None

Analyst: ______ Reviewing Supervisor: ______

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FAX (406) 252-6069 • 1-800-735-4489 • E-MAIL eli@energylab.com

LABORATORY REPORT

Page: 1

To : Envirocon, Inc.
Address : Mike McKinsey
P.O. Box 8243
Missoula, MT 59807

Lab No. : 98-36366 fs
Date : 6/17/98

GENERAL INFORMATION:

Laboratory No. : 98-36366
Sample Type : WATER
Sample Point : 140101-16234L-87-3
Sample Date : 5/28/98
Sample Time : 1715
Sample Received : 5/29/98

LABORATORY DATA:

		Result		Date Analyzed
Sulfate	(mg/l)	119		6/04/98
Nitrogen,Nitrate	(mg/l)	2.77		6/01/98
Ferrous Iron	(mg/l)	<0.1		6/02/98
Methane in headspace	(ppm)	2	(1)	6/02/98

(1) Volume of water in vial: 33 ml

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LABORATORY REPORT

Page: 1

To : Envirocon, Inc.
Address : Mike McKinsey
P.O. Box 8243
Missoula, MT 59807

Lab No. : 98-36367 fs
Date : 6/17/98

GENERAL INFORMATION:

Laboratory No. : 98-36367
Sample Type : WATER
Sample Point : 140101-16[illegible]37 92-3
Sample Date : 5/29/98
Sample Time : 1120
Sample Received : 5/29/98

LABORATORY DATA:

		Result		Date Analyzed
Sulfate	(mg/l)	39		6/04/98
Nitrogen,Nitrate	(mg/l)	0.75		6/01/98
Methane in headspace	(ppm)	3	(1)	6/02/98

(1) Volume of water in vial: 28 ml

ab No(s). 98-36366 - 98-36367

QUALITY ASSURANCE DATA PACKAGE

This report includes the results of quality assurance tests performed with the sample analyses. They are performed to determine if the methodology is in control and to monitor the laboratory's ability to produce accurate and precise results.

		Duplicate Analysis --- mg/l (ppm) ---		Spiked Analysis	Blank	------ Reference ------		
stituents		Original	Duplicate	% Recovery	Analysis, mg/l ppm	Sample Analysis, mg/l ppm	Accept Range mg/l ppm	Date Analyzed
fate		119	119	98	<1	124	112-138	05-JUN-98
rate as N		4.30	4.25	113	<0.05	2.37	2.04-2.56	01-JUN-98
rate plus Nitrite as N		4.30	4.25	113	<0.05	2.37	2.04-2.56	01-JUN-98
hane, Headspace	ppm	N/A	N/A	N/A	<1	14	13-14	02-JUN-98
als Analysis								
rous Iron		<0.1	<0.1	100	<0.1	2.0	1.8 - 2.2	02-JUN-98

Lab Nos.: 98-36366 - 98-36370
Date: 29-MAY-98
Received by: Bob Reid
Login Date: 01-JUN-98
Logged In by: Pam Fink

SAMPLE CONDITION QA/QC REPORT

This report provides information about the condition of the sample(s) and associated sample custody information on receipt at the laboratory.

Chain of Custody Form Completed & Signed	Yes	Comments:
Chain of Custody Seal	Yes	Comments:
Intact	Yes	Comments:
Signature Match Chain of Custody vs. Seal	Yes	Comments:
Samples Received Cold	Yes	Comments:
Samples Received Within Holding Time	No	Comments: Nitrate and Ferrous Iron received past the holding time.
Samples Received in Proper Containers	Yes	Comments:
Samples Received Properly Preserved	Yes	Comments:

Samples requiring analysis for volatile organics are tested for proper preservation at the time of analysis. Any preservation problems encountered for these samples are noted on the analytical parameter report pages.

Client notified about sample discrepancies:

Who: Mike McKinsey By: Pam Fink Date/Time: 01-JUN-98 0830

Method of Shipping: Greyhound 1303595337

Additional comments: Run Nitrate and Ferrous Iron even though they are past the holding time.

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June 17, 1998

Michael McKinsey
Envirocon, Inc.
P.O. Box 8243
Missoula, MT 59807

Dear Michael:

On May 29, 1998, these samples, represented by our laboratory numbers 98-36366 through 98-36370, were submitted to our laboratory for analysis.

The test results and quality assurance were reviewed and approved by the undersigned.

Reviewed by:

ENERGY LABORATORIES, INC
P.O. Box 30916 1120 South 27th Street
Billings, Montana 59107

toll-free 800-735-4489
voice 406-252-6325
fax 406-252-6069

CHAIN OF CUSTODY RECORD

PLEASE PRINT OR TYPE ALL INFORMATION EXCEPT SIGNATURES

P.O. #

Project Name / Address: Livingston Rail Yard

Contact Name & Phone: Mike McKinsey (406) 523-1167

Sampler's signature: Michael McKinsey

Invoice to:
Envirocon
500 Taylor St
Missoula, MT 59802

Report to: ↓

Analysis Requested

DATE	TIME	composite	grab sample	SAMPLE I.D.	number of containers Sample Type: A W S V U O Air Water Soils/solids Vegetation Urine Other	601	524.2	Nitrate Only	Sulfate	Methane	Ferrous Iron			Comments, Special Instructions, etc.
5/28/98				140101-1632	6W	X		X	X	X	X			
↓				-1633	2W	X								
5/29/98				-1634	2W	X								
				-1635	3W			X	X	X				
↓				-1636	2W		X							

1. Relinquished (signature) Michael McKinsey	Date 5/29/98	Time 1330	Received by: (signature)	3. Relinquished (signature)	Date	Time	Received by (signature):
2. Relinquished (signature)	Date	Time	Received by: (signature)	4. Relinquished (signature)	Date 06/01/98	Time 0844	Received for laboratory by (signature): Pam Fink

MAY 1998

MDEQ SPLIT SAMPLE RESULTS

DEPARTMENT OF ENVIRONMENTAL QUALITY

MARC RACICOT, GOVERNOR

STATE OF MONTANA

(406) 444-2544

PO BOX 200901
HELENA, MONTANA 59620-0901

June 17, 1998

John Mills
Envirocon, Inc
P.O. Box 6403
Bozeman, MT 59771-1332

Subject: DEQ May 1998 sample results for the BNSF Livingston site

Dear Mr. Mills:

Enclosed are laboratory results from DEQ samples collected at the BNSF Livingston site on May 21, 1998.

Please call if you have any questions.

Sincerely,

John Wadhams
Project Coordinator
BNSF Livingston site

enclosure

*AN EQUAL OPPORTUNITY EMPLOYER

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FAX (406) 252-6069 • 1-800-735-4489 • E-MAIL eli@energylab.com

Client: MT Department of Environmental Quality
Date Sampled: 21-MAY-98 08:40
Date Received: 22-MAY-98
Extraction Date: 26-MAY-1998
Analysis Date: 09-JUN-1998 15:15
Project Info: BN Livingston Site
Sample Info: MW-1

Lab No.: 98-35460
Report Date: 06/10/98 09:49
Sample Matrix: WATER
Extraction Method: EPA 3510
Prep Info: 870ml to 1ml

EPA METHOD 8270B: SEMI-VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Acenaphthene	83-32-9	<12	U
Acenaphthylene	208-96-8	<12	U
Anthracene	120-12-7	<12	U
Azobenzene	103-33-3	<12	U
Benzidine	92-87-5	<23	U
Benzo(a)Anthracene	56-55-3	<12	U
Benzo(b)fluoranthene	205-99-2	<12	U
Benzo(k)fluoranthene	207-08-9	<12	U
Benzo(g,h,i)perylene	191-24-2	<12	U
Benzo(a)pyrene	50-32-8	<12	U
4-Bromophenyl-phenylether	101-55-3	<12	U
Butylbenzylphthalate	85-68-7	<12	U
4-Chloro-3-Methylphenol	59-50-7	<12	U
bis(-2-Chloroethoxy)Methane	111-91-1	<12	U
bis(-2-Chloroethyl)Ether	111-44-4	<12	U
bis(2-Chloroisopropyl)ether	108-60-1	<12	U
2-Chloronaphthalene	91-58-7	<12	U
2-Chlorophenol	95-57-8	<12	U
4-Chlorophenol	106-48-9	<12	U
4-Chlorophenyl-phenylether	7005-72-3	<12	U
Chrysene	218-01-9	<12	U
Dibenzo(a,h)anthracene	53-70-3	<12	U
1,2-Dichlorobenzene	95-50-1	<12	U
1,3-Dichlorobenzene	541-73-1	<12	U
1,4-Dichlorobenzene	106-46-7	<12	U
3,3'-Dichlorobenzidine	91-94-1	<23	U
2,4-Dichlorophenol	120-83-2	<12	U
Dimethyl Phthalate	131-11-3	<12	U
Diethylphthalate	84-66-2	<12	U
2,4-Dimethylphenol	105-67-9	<12	U
Di-n-Butylphthalate	84-74-2	<12	U
4,6-Dinitro-2-methylphenol	534-52-1	<58	U
2,4-Dinitrophenol	51-28-5	<58	U
2,4-Dinitrotoluene	121-14-2	<12	U
2,6-Dinitrotoluene	606-20-2	<12	U
Di-n-octyl Phthalate	117-84-0	<12	U
bis(2-ethylhexyl)Phthalate	117-81-7	<12	U
Fluoranthene	206-44-0	<12	U
Fluorene	86-73-7	<12	U
Hexachlorobenzene	118-74-1	<12	U
Hexachlorobutadiene	87-68-3	<12	U
Hexachlorocyclopentadiene	77-47-4	<12	U
Hexachloroethane	67-72-1	<12	U

(report continued on page 2)

EPA METHOD 8270B: SEMI-VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Indeno(1,2,3-c,d)pyrene	193-39-5	<12	U
Isophorone	78-59-1	<12	U
1-Methylnaphthalene	90-12-0	<12	U
2-Methylnaphthalene	91-57-6	<12	U
2-Methylphenol	95-48-7	<12	U
4Methylphenol/3Methylphenol	106445/108394	<12	U
Naphthalene	91-20-3	<12	U
Nitrobenzene	98-95-3	<12	U
2-Nitrophenol	88-75-5	<12	U
4-Nitrophenol	100-02-7	<58	U
N-Nitrosodimethylamine	62-75-9	<12	U
N-nitroso-Di-n-propylamine	621-64-7	<12	U
N-nitrosodiphenylamine	86-30-6	<12	U
Pentachlorophenol	87-86-5	<58	U
Phenanthrene	85-01-8	<12	U
Phenol	108-95-2	<12	U
Pyrene	129-00-0	<12	U
Pyridine	110-86-1	<23	U
1,2,4-Trichlorobenzene	120-82-1	<12	U
2,4,5-Trichlorophenol	95-95-4	<12	U
2,4,6-Trichlorophenol	88-06-2	<12	U

------------------- SURROGATE RECOVERY REPORT ------------------

Surrogate Compound	Added-ug/L	Measured-ug/L	%Rec	QC Limits
2-Fluorophenol	230	78.8	34	21--100
Phenol-d5	230	90.7	39	10-- 94
Nitrobenzene-d5	115	53.4	46	35--114
2-Fluorobiphenyl	115	51.3	45	43--116
2,4,6-Tribromophenol	230	141	61	10--123
Terphenyl-d14	115	78.6	68	33--141

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

REPORT COMMENTS: The Practical Quantitation Limit reflects the initial sample volume.

Analyst:________ Reviewing Supervisor:________ /disk3/SV5972.i/sb060998.b/09jun0301003.d

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Client: MT Department of Environmental Quality	Lab No.: 98-35461
Date Sampled: 21-MAY-98 09:45	Report Date: 06/10/98 09:49
Date Received: 22-MAY-98	Sample Matrix: WATER
Extraction Date: 26-MAY-1998	Extraction Method: EPA 3510
Analysis Date: 09-JUN-98 15:57	Prep Info: 860ml to 1ml
Project Info: BN Livingston Site	
Sample Info: MW-2	

EPA METHOD 8270B: SEMI-VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Acenaphthene	83-32-9	<12	U
Acenaphthylene	208-96-8	<12	U
Anthracene	120-12-7	<12	U
Azobenzene	103-33-3	<12	U
Benzidine	92-87-5	<23	U
Benzo(a)Anthracene	56-55-3	<12	U
Benzo(b)fluoranthene	205-99-2	<12	U
Benzo(k)fluoranthene	207-08-9	<12	U
Benzo(g,h,i)perylene	191-24-2	<12	U
Benzo(a)pyrene	50-32-8	<12	U
4-Bromophenyl-phenylether	101-55-3	<12	U
Butylbenzylphthalate	85-68-7	<12	U
4-Chloro-3-Methylphenol	59-50-7	<12	U
bis(-2-Chloroethoxy)Methane	111-91-1	<12	U
bis(-2-Chloroethyl)Ether	111-44-4	<12	U
bis(2-Chloroisopropyl)ether	108-60-1	<12	U
2-Chloronaphthalene	91-58-7	<12	U
2-Chlorophenol	95-57-8	<12	U
4-Chlorophenol	106-48-9	<12	U
4-Chlorophenyl-phenylether	7005-72-3	<12	U
Chrysene	218-01-9	<12	U
Dibenzo(a,h)anthracene	53-70-3	<12	U
1,2-Dichlorobenzene	95-50-1	<12	U
1,3-Dichlorobenzene	541-73-1	<12	U
1,4-Dichlorobenzene	106-46-7	<12	U
3,3'-Dichlorobenzidine	91-94-1	<23	U
2,4-Dichlorophenol	120-83-2	<12	U
Dimethyl Phthalate	131-11-3	<12	U
Diethylphthalate	84-66-2	<12	U
2,4-Dimethylphenol	105-67-9	<12	U
Di-n-Butylphthalate	84-74-2	<12	U
4,6-Dinitro-2-methylphenol	534-52-1	<58	U
2,4-Dinitrophenol	51-28-5	<58	U
2,4-Dinitrotoluene	121-14-2	<12	U
2,6-Dinitrotoluene	606-20-2	<12	U
Di-n-octyl Phthalate	117-84-0	<12	U
bis(2-ethylhexyl)Phthalate	117-81-7	<12	U
Fluoranthene	206-44-0	<12	U
Fluorene	86-73-7	<12	U
Hexachlorobenzene	118-74-1	<12	U
Hexachlorobutadiene	87-68-3	<12	U
Hexachlorocyclopentadiene	77-47-4	<12	U
Hexachloroethane	67-72-1	<12	U

(report continued on page 2)

Lab No.: 98-35462
Sample Info: L-88-13

EPA METHOD 8270B: SEMI-VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Indeno(1,2,3-c,d)pyrene	193-39-5	<12	U
Isophorone	78-59-1	<12	U
1-Methylnaphthalene	90-12-0	<12	U
2-Methylnaphthalene	91-57-6	<12	U
2-Methylphenol	95-48-7	<12	U
4Methylphenol/3Methylphenol	106445/108394	<12	U
Naphthalene	91-20-3	<12	U
Nitrobenzene	98-95-3	<12	U
2-Nitrophenol	88-75-5	<12	U
4-Nitrophenol	100-02-7	<61	U
N-Nitrosodimethylamine	62-75-9	<12	U
N-nitroso-Di-n-propylamine	621-64-7	<12	U
N-nitrosodiphenylamine	86-30-6	<12	U
Pentachlorophenol	87-86-5	<61	U
Phenanthrene	85-01-8	<12	U
Phenol	108-95-2	<12	U
Pyrene	129-00-0	<12	U
Pyridine	110-86-1	<24	U
1,2,4-Trichlorobenzene	120-82-1	<12	U
2,4,5-Trichlorophenol	95-95-4	<12	U
2,4,6-Trichlorophenol	88-06-2	<12	U

------------------ SURROGATE RECOVERY REPORT ------------------

Surrogate Compound	Added-ug/L	Measured-ug/L	%Rec	QC Limits
2-Fluorophenol	244	111	45	21--100
Phenol-d5	244	104	43	10-- 94
Nitrobenzene-d5	122	78.3	64	35--114
2-Fluorobiphenyl	122	75.6	62	43--116
2,4,6-Tribromophenol	244	190	78	10--123
Terphenyl-d14	122	101	83	33--141

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

REPORT COMMENTS: The Practical Quantitation Limit reflects the initial sample volume.

Analyst: ________ Reviewing Supervisor: ________ /disk3/SV5972.i/sb060998.b/09jun0501005.d

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FAX (406) 252-6069 • 1-800-735-4489 • E-MAIL eli@energylab.com

Client: MT Department of Environmental Quality
Date Sampled: 21-MAY-98 11:45
Date Received: 22-MAY-98
Extraction Date: 26-MAY-1998
Analysis Date: 09-JUN-1998 17:21
Project Info: BN Livingston Site
Sample Info: L-87-4

Lab No.: 98-35463
Report Date: 06/10/98 09:45
Sample Matrix: WATER
Extraction Method: EPA 3510
Prep Info: 880ml to 1ml

EPA METHOD 8270B: SEMI-VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Acenaphthene	**83-32-9**	**<11**	**1.8J**
Acenaphthylene	208-96-8	<11	U
Anthracene	120-12-7	<11	U
Azobenzene	103-33-3	<11	U
Benzidine	92-87-5	<23	U
Benzo(a)Anthracene	56-55-3	<11	U
Benzo(b)fluoranthene	205-99-2	<11	U
Benzo(k)fluoranthene	207-08-9	<11	U
Benzo(g,h,i)perylene	191-24-2	<11	U
Benzo(a)pyrene	50-32-8	<11	U
4-Bromophenyl-phenylether	101-55-3	<11	U
Butylbenzylphthalate	85-68-7	<11	U
4-Chloro-3-Methylphenol	59-50-7	<11	U
bis(-2-Chloroethoxy)Methane	111-91-1	<11	U
bis(-2-Chloroethyl)Ether	111-44-4	<11	U
bis(2-Chloroisopropyl)ether	108-60-1	<11	U
2-Chloronaphthalene	91-58-7	<11	U
2-Chlorophenol	95-57-8	<11	U
4-Chlorophenol	106-48-9	<11	U
4-Chlorophenyl-phenylether	7005-72-3	<11	U
Chrysene	218-01-9	<11	U
Dibenzo(a,h)anthracene	53-70-3	<11	U
1,2-Dichlorobenzene	95-50-1	<11	U
1,3-Dichlorobenzene	541-73-1	<11	U
1,4-Dichlorobenzene	106-46-7	<11	U
3,3'-Dichlorobenzidine	91-94-1	<23	U
2,4-Dichlorophenol	120-83-2	<11	U
Dimethyl Phthalate	131-11-3	<11	U
Diethylphthalate	84-66-2	<11	U
2,4-Dimethylphenol	105-67-9	<11	U
Di-n-Butylphthalate	**84-74-2**	**<11**	**1.2J**
4,6-Dinitro-2-methylphenol	534-52-1	<57	U
2,4-Dinitrophenol	51-28-5	<57	U
2,4-Dinitrotoluene	121-14-2	<11	U
2,6-Dinitrotoluene	606-20-2	<11	U
Di-n-octyl Phthalate	117-84-0	<11	U
bis(2-ethylhexyl)Phthalate	117-81-7	<11	U
Fluoranthene	206-44-0	<11	U
Fluorene	**86-73-7**	**<11**	**2.0J**
Hexachlorobenzene	118-74-1	<11	U
Hexachlorobutadiene	87-68-3	<11	U
Hexachlorocyclopentadiene	77-47-4	<11	U
Hexachloroethane	67-72-1	<11	U

(report continued on page 2)

EPA METHOD 8270B: SEMI-VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Indeno(1,2,3-c,d)pyrene	193-39-5	<11	U
Isophorone	78-59-1	<11	U
1-Methylnaphthalene	**90-12-0**	<11	3.7J
2-Methylnaphthalene	91-57-6	<11	U
2-Methylphenol	95-48-7	<11	U
4Methylphenol/3Methylphenol	106445/108394	<11	U
Naphthalene	91-20-3	<11	U
Nitrobenzene	98-95-3	<11	U
2-Nitrophenol	88-75-5	<11	U
4-Nitrophenol	100-02-7	<57	U
N-Nitrosodimethylamine	62-75-9	<11	U
N-nitroso-Di-n-propylamine	621-64-7	<11	U
N-nitrosodiphenylamine	86-30-6	<11	U
Pentachlorophenol	87-86-5	<57	U
Phenanthrene	85-01-8	<11	U
Phenol	108-95-2	<11	U
Pyrene	129-00-0	<11	U
Pyridine	110-86-1	<23	U
1,2,4-Trichlorobenzene	120-82-1	<11	U
2,4,5-Trichlorophenol	95-95-4	<11	U
2,4,6-Trichlorophenol	88-06-2	<11	U

------------------- SURROGATE RECOVERY REPORT -------------------

Surrogate Compound	Added-ug/L	Measured-ug/L	%Rec	QC Limits
2-Fluorophenol	227	115	51	21--100
Phenol-d5	227	106	47	10-- 94
Nitrobenzene-d5	114	86.1	76	35--114
2-Fluorobiphenyl	114	77.9	68	43--116
2,4,6-Tribromophenol	227	187	82	10--123
Terphenyl-d14	114	96.4	85	33--141

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.
J= Estimated value. Present, but less than the limit of quantitation.

REPORT COMMENTS: The Practical Quantitation Limit reflects the initial sample volume.

Analyst:______ Reviewing Supervisor:______ /disk3/SV5972.i/sb060998.b/09jun0601006.d

EPA METHOD 8270B: QUALITY ASSURANCE BLANK MATRIX SPIKE REPORT

Quality Control Sample: Certified Reference Sample Analysis 08-JUN-98 11:07
Report Date: 06/08/98 14:33
Extraction Method: EPA 3510
Extraction Date: 26-MAY-1998 00:00
Sample Matrix: WATER
File: /disk3/SV5972.i/sb060898.b/08jun0401004.d
Remarks: This certified reference sample was spiked into a blank sample matrix then extracted and analyzed with your set of samples to determine if the methodology is in control and to monitor the laboratory's ability to produce accurate results.

	CONCENTRATION UNITS = ug/L (ppb)			
Spike Compound	**Added**	**Measured**	**%Rec**	**QC Limits**
Acenaphthene	100	78.0	78	47--145
Acenaphthylene	96.0	71.1	74	33--145
Anthracene	100	78.3	78	27--133
Benzo(a)Anthracene	100	85.1	85	33--143
Benzo(b)fluoranthene	100	87.7	88	24--159
Benzo(k)fluoranthene	100	82.1	82	11--162
Benzo(g,h,i)perylene	100	78.6	79	10--219
Benzo(a)pyrene	100	83.6	84	17--163
4-Bromophenyl-phenylether	100	80.5	80	53--127
Butylbenzylphthalate	100	85.2	85	10--152
4-Chloro-3-Methylphenol	100	74.9	75	22--147
bis(-2-Chloroethoxy)Methane	101	75.4	75	33--184
bis(-2-Chloroethyl)Ether	100	61.8	62	12--158
bis(2-Chloroisopropyl)ether	100	62.2	62	36--166
2-Chloronaphthalene	100	70.3	70	60--118
2-Chlorophenol	100	61.4	61	23--134
4-Chlorophenyl-phenylether	101	80.6	80	25--158
Chrysene	100	85.3	85	17--168
Dibenzo(a,h)anthracene	100	75.7	76	10--227
1,2-Dichlorobenzene	100	55.6	56	32--129
1,3-Dichlorobenzene	100	49.6	50	10--172
1,4-Dichlorobenzene	100	56.7	57	20--124
2,4-Dichlorophenol	101	69.6	69	39--135
Dimethyl Phthalate	100	83.2	83	10--112
Diethylphthalate	101	83.0	82	10--114
2,4-Dimethylphenol	100	58.1	58	32--119
Di-n-Butylphthalate	101	81.7	81	10--118
4,6-Dinitro-2-methylphenol	99.0	61.4	62	10--181
2,4-Dinitrophenol	100	38.9	39	10--191
2,4-Dinitrotoluene	102	81.9	80	39--139
2,6-Dinitrotoluene	101	80.4	80	50--158
Di-n-octyl Phthalate	100	90.0	90	10--146
bis(2-ethylhexyl)Phthalate	100	83.2	83	8--158
Fluoranthene	100	82.7	83	26--137
Fluorene	100	77.0	77	59--121
Hexachlorobenzene	100	77.2	77	10--152
Hexachlorobutadiene	99.0	63.8	64	24--116
Hexachlorocyclopentadiene	100	50.6	51	30--130
Hexachloroethane	100	57.0	57	40--113
Indeno(1,2,3-c,d)pyrene	100	81.9	82	10--171
Isophorone	101	77.3	77	21--196
Naphthalene	100	65.9	66	21--133
Nitrobenzene	101	68.6	68	35--180

(report continued on page 2)

Lab No.: SREF0526
Sample Info:

EPA METHOD 8270B: SEMI-VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

Spike Compound	Added	Measured	%Rec	QC Limits
2-Nitrophenol	100	67.5	68	29--182
4-Nitrophenol	100	43.1	43	10--132
N-Nitrosodimethylamine	100	43.4	43	30--130
N-nitroso-Di-n-propylamine	100	80.1	80	10--230
N-nitrosodiphenylamine	100	82.6	83	30--130
Pentachlorophenol	101	68.8	68	14--176
Phenanthrene	100	79.3	79	54--120
Phenol	100	46.4	46	10--112
Pyrene	99.0	83.9	85	52--115
1,2,4-Trichlorobenzene	100	57.9	58	44--142
2,4,6-Trichlorophenol	101	76.0	75	37--144

SURROGATE RECOVERY REPORT

Surrogate Compound	Added-ug/L	Measured-ug/L	%Rec	QC Limits
2-Fluorophenol	200	95.2	48	21--100
Phenol-d5	200	95.1	48	10-- 94
Nitrobenzene-d5	100	65.6	66	35--114
2-Fluorobiphenyl	100	58.9	59	43--116
2,4,6-Tribromophenol	200	160	80	10--123
Terphenyl-d14	100	80.1	80	33--141

REPORT COMMENTS: None

Analyst:________ Reviewing Supervisor:________

Quality Control Sample: Laboratory Reagent Blank 08-JUN-98 10:26
Report Date: 06/08/98 14:30
Extraction Method: EPA 3510
Extraction Date: 26-MAY-1998 00:00
Sample Matrix: WATER
Remarks: This Laboratory Reagent Blank Quality Control Sample was extracted and analyzed with your set of samples to determine if method analytes or other interferences are present in the laboratory environment, the reagents, or the apparatus.

EPA METHOD 8270B: SEMI-VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Acenaphthene	83-32-9	<10	U
Acenaphthylene	208-96-8	<10	U
Anthracene	120-12-7	<10	U
Azobenzene	103-33-3	<10	U
Benzidine	92-87-5	<20	U
Benzo(a)Anthracene	56-55-3	<10	U
Benzo(b)fluoranthene	205-99-2	<10	U
Benzo(k)fluoranthene	207-08-9	<10	U
Benzo(g,h,i)perylene	191-24-2	<10	U
Benzo(a)pyrene	50-32-8	<10	U
4-Bromophenyl-phenylether	101-55-3	<10	U
Butylbenzylphthalate	85-68-7	<10	U
4-Chloro-3-Methylphenol	59-50-7	<10	U
bis(-2-Chloroethoxy)Methane	111-91-1	<10	U
bis(-2-Chloroethyl)Ether	111-44-4	<10	U
bis(2-Chloroisopropyl)ether	108-60-1	<10	U
2-Chloronaphthalene	91-58-7	<10	U
2-Chlorophenol	95-57-8	<10	U
4-Chlorophenol	106-48-9	<10	U
4-Chlorophenyl-phenylether	7005-72-3	<10	U
Chrysene	218-01-9	<10	U
Dibenzo(a,h)anthracene	53-70-3	<10	U
1,2-Dichlorobenzene	95-50-1	<10	U
1,3-Dichlorobenzene	541-73-1	<10	U
1,4-Dichlorobenzene	106-46-7	<10	U
3,3'-Dichlorobenzidine	91-94-1	<20	U
2,4-Dichlorophenol	120-83-2	<10	U
Dimethyl Phthalate	131-11-3	<10	U
Diethylphthalate	84-66-2	<10	U
2,4-Dimethylphenol	105-67-9	<10	U
Di-n-Butylphthalate	84-74-2	<10	U
4,6-Dinitro-2-methylphenol	534-52-1	<50	U
2,4-Dinitrophenol	51-28-5	<50	U
2,4-Dinitrotoluene	121-14-2	<10	U
2,6-Dinitrotoluene	606-20-2	<10	U
Di-n-octyl Phthalate	117-84-0	<10	U
bis(2-ethylhexyl)Phthalate	117-81-7	<10	U
Fluoranthene	206-44-0	<10	U
Fluorene	86-73-7	<10	U
Hexachlorobenzene	118-74-1	<10	U
Hexachlorobutadiene	87-68-3	<10	U
Hexachlorocyclopentadiene	77-47-4	<10	U
Hexachloroethane	67-72-1	<10	U

(report continued on page 2)

Quality Control Sample: Laboratory Reagent Blank 08-JUN-98 10:26
Report Date: 06/08/98 14:30

EPA METHOD 8270B: SEMI-VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L (ppb)

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
Indeno(1,2,3-c,d)pyrene	193-39-5	<10	U
Isophorone	78-59-1	<10	U
1-Methylnaphthalene	90-12-0	<10	U
2-Methylnaphthalene	91-57-6	<10	U
2-Methylphenol	95-48-7	<10	U
4Methylphenol/3Methylphenol	106445/108394	<10	U
Naphthalene	91-20-3	<10	U
Nitrobenzene	98-95-3	<10	U
2-Nitrophenol	88-75-5	<10	U
4-Nitrophenol	100-02-7	<50	U
N-Nitrosodimethylamine	62-75-9	<10	U
N-nitroso-Di-n-propylamine	621-64-7	<10	U
N-nitrosodiphenylamine	86-30-6	<10	U
Pentachlorophenol	87-86-5	<50	U
Phenanthrene	85-01-8	<10	U
Phenol	108-95-2	<10	U
Pyrene	129-00-0	<10	U
Pyridine	110-86-1	<20	U
1,2,4-Trichlorobenzene	120-82-1	<10	U
2,4,5-Trichlorophenol	95-95-4	<10	U
2,4,6-Trichlorophenol	88-06-2	<10	U

------------------- SURROGATE RECOVERY REPORT -------------------

Surrogate Compound	Added-ug/L	Measured-ug/L	%Rec	QC Limits
2-Fluorophenol	200	91.3	46	21--100
Phenol-d5	200	89.3	45	10-- 94
Nitrobenzene-d5	100	71.0	71	35--114
2-Fluorobiphenyl	100	62.7	63	43--116
2,4,6-Tribromophenol	200	178	89	10--123
Terphenyl-d14	100	90.9	91	33--141

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

REPORT COMMENTS: None

Analyst:______ Reviewing Supervisor:______ /disk3/SV5972.i/sb060898.b/08jun0301003.d

ENERGY LABORATORIES

ENERGY LABORATORIES, INC.
P.O. BOX 30916 • 1120 SOUTH 27TH STREET • BILLINGS, MT 59107-0916 • PHONE (406) 252-6325
FAX (406) 252-6069 • 1-800-735-4489 • E-MAIL eli@energylab.com

LABORATORY REPORT

o : MT Department of Environmental
ddress : John Wadhams
PO Box 200901
Helena, MT 59620

Date: 26-MAY-98 lims

WATER ANALYSIS REPORT

Project : BN Livingston Site
Received Date: 22-MAY-98

ANALYSIS FOR : **Total Petroleum Hydrocarbons**

		Detection			Re-		- -Analysis- -		
LabSamp #	Sample ID	Limit	Results	Units	marks	Method	Date	Time	By
98-35460	MW-1 Sampled: 21-MAY-98 @ 0840	0.1	<0.1	mg/l		418.1	26-MAY-98	0720	BDW
98-35461	MW-2 Sampled: 21-MAY-98 @ 0945	0.1	<0.1	mg/l		418.1	26-MAY-98	0745	BDW
98-35462	L-88-13 Sampled: 21-MAY-98 @ 1100	0.1	<0.1	mg/l		418.1	26-MAY-98	0805	BDW
98-35463	L-87-4 Sampled: 21-MAY-98 @ 1145	0.1	7.1	mg/l		418.1	26-MAY-98	0830	BDW

Lab No(s). 98-35460 - 98-35463

QUALITY ASSURANCE DATA PACKAGE

This report includes the results of quality assurance tests performed with the sample analyses. They are performed to determine if the methodology is in control and to monitor the laboratory's ability to produce accurate and precise results.

Constituents	Duplicate Analysis --- mg/l (ppm) --- Original	Duplicate	Spiked Analysis % Recovery	Blank Analysis, mg/l ppm	------ Reference ------ Sample Analysis, mg/l ppm	Accept Range mg/l ppm	Date Analyzed
Total Petroleum Hydrocarbons	N/A	N/A	N/A	<0.1	8.1	7.0-9.0	26-MAY-98

Lab Nos.: 98-35460 - 98-35463

Date: 22-MAY-98

Received by: Randa Hoelscher

Logged In by: Randa Hoelscher

SAMPLE CONDITION QA/QC REPORT

This report provides information about the condition of the sample(s) and associated sample custody information on receipt at the laboratory.

Chain of Custody Form Completed & Signed	Yes	Comments:
Chain of Custody Seal	No	Comments:
Intact	N/A	Comments:
Signature Match Chain of Custody vs. Seal	N/A	Comments:
Samples Received Cold	No	Comments:
Samples Received Within Holding Time	Yes	Comments:
Samples Received in Proper Containers	Yes	Comments:
Samples Received Properly Preserved	No	Comments: TPH containers rec'd at pH ˜7, 8 mls H_2SO_4 added to acidify to pH <2.

Samples requiring analysis for volatile organics are tested for proper preservation at the time of analysis. Any preservation problems encountered for these samples are noted on the analytical parameter report pages.

Client notified about sample discrepancies:

Who: By: Date/Time:

Method of Shipping: Greyhound 130 359 368 7

Additional comments:

ENERGY LABORATORIES, INC
P.O. Box 30916 1120 South 27th Street
Billings, Montana 59107

toll-free 800-735-4489
voice 406-252-6325
fax 406-252-6069

CHAIN OF CUSTODY RECORD

PLEASE PRINT OR TYPE ALL INFORMATION EXCEPT SIGNATURES

P.O. #

Project Name / Address: BN Livingston site

Contact Name & Phone: 444-0495 John Wadhams

Sampler's signature: John Wadhams

Invoice to:
John Wadhams
DEQ
2209 Phoenix Ave.
Helena, MT 59620-0901

Report to: Same

Sample Type: A [✓ W] S V U O — Air Water Soils/solids Vegetation Urine Other

DATE	TIME	composite	grab sample	SAMPLE I.D.	number of containers	Sample Type	Analysis Requested: 8270	TPH (418.1)							Comments, Special Instructions, etc.
5/21/98	8:40a		X	MW-1		W	X	X							
11	9:45a		11	MW-2		11	11	11							
11	11:00a		11	L-88-13		11	11	11							
11	11:45a		11	L-87-4		11	11	11							

	Relinquished (signature)	Date	Time	Received by: (signature)
1.	J. Wadhams	5/21/98	1:07p	Greyhound Bus
2.				
3.				
4.		5/22/98	1215	

Received for laboratory by (signature)

APPENDIX B

DATA VALIDATION REPORT FOR GROUND WATER ANALYSES

DATA VALIDATION REPORT FOR GROUND WATER ANALYSES LIVINGSTON RAIL YARD, LIVINGSTON, MONTANA NOVEMBER 1997 AND MAY 1998 SAMPLING ROUNDS

1.0 INTRODUCTION

Data validation levels have been established for the sample rounds according to the criteria described in Appendix 1.A of the Remedial Investigation Report (Envirocon, 1998). The data validation levels and codes for the Livingston Rail Yard project are based on the U.S. Environmental Protection Agency region VIII guidance, "Evaluation Criteria for Existing Data from CERCLA Study Areas", Revision 1, January 5, 1985.

Table 1 lists the samples taken during the November 1997 and May 1998 sample rounds.

Table 1.0
November 1997 and May 1998 Ground Water Samples

Sample Number	Sample Location	Laboratory ID #	Sample Date	EPA Method
140101-1584	89-4	97-70106	11/10/97	601
140101-1585	92-2	97-70107	11/10/97	601
140101-1586	94-2	97-70108	11/10/97	601
140101-1587	89-3	97-70109	11/11/97	601
140101-1588	92-1	97-70110	11/11/97	601
140101-1588	92-1	97-70110 Lab dup.	11/11/97	601
140101-1589	90-3	97-70111	11/11/97	601
140101-1590	L-88-10	97-70113	11/12/97	601, NAP
140101-1591	Trip Blank	97-70112	11/12/97	601
140101-1592	L-88-13	97-70115	11/12/97	NAP
140101-1593	L-87-8	97-70114	11/12/97	601, NAP
140101-1594	L-87-7	97-70116	11/12/97	NAP
140101-1595	L-87-4	97-70117	11/12/97	NAP
140101-1596	92-3	97-70241	11/13/97	NAP
140101-1597	2	97-70242	11/13/97	NAP
140101-1598	L-87-1	97-70243	11/13/97	NAP
140101-1599	L-87-3	97-70244	11/13/97	NAP
140101-1600	89-2	97-70245	11/13/97	NAP
140101-1601	L-87-2	97-70473	11/14/97	601, NAP
140101-1602	L-87-2 dupl.	97-70474	11/14/97	601
140101-1603	94-1	97-70475	11/14/97	601
140101-1604	94-1 dupl.	97-70476	11/14/97	601
140101-1605	89-9	97-70747	11/18/97	601
140101-1606	L-87-2	97-70748	11/18/97	NAP
140101-1607	95-1	97-70749	11/18/97	NAP
140101-1608	92-4	98-35055	5/18/98	601
140101-1609	94-1	98-35056	5/18/98	601
140101-1610	89-2	98-35058	5/19/98	601, NAP
140101-1611	92-2	98-35057	5/19/98	601
140101-1612	LS-11	98-35392	5/19/98	601
140101-1613	90-3	98-35393	5/20/98	601
140101-1614	89-4	98-35394	5/20/98	601
140101-1615	89-4 dupl.	98-35395	5/20/98	601
140101-1616	89-10	98-35396	5/20/98	601
140101-1617	89-6	98-35397	5/20/98	601

Table 1.0 (cont.)

November 1997 and May 1998 Ground Water Samples

Sample Number	Sample Number	Laboratory ID #	Sample Date	EPA Method
140101-1618	Rainbow	98-35398	5/20/98	601
140101-1619	1	98-35399	5/21/98	601
140101-1620	2	98-35389	5/21/98	601, NAP
140101-1621	L-88-13	98-35390	5/21/98	601, NAP
140101-1621	L-88-13	98-35390 Lab dup.	5/21/98	601, NAP
140101-1622	L-87-4	98-35391	5/21/98	601, NAP
140101-1623	4	98-35400	5/21/98	601
140101-1623	4	98-35400 Lab dup.	5/21/98	601
140101-1624	Trip Blank	98-35401	5/21/98	601
140101-1625	5	98-35402	5/21/98	601
140101-1626	6	98-36235	5/21/98	601
140101-1627	89-3	98-36236	5/27/98	601
140101-1628	L-87-2	98-36239	5/28/98	601, NAP
140101-1629	L-87-7	98-36240	5/28/98	601, NAP
140101-1630	L-87-7 dupl.	98-36237	5/28/98	601
140101-1631	L-87-8	98-36242	5/28/98	601, NAP
140101-1632	L-88-10	98-36241	5/28/98	601, NAP
140101-1633	Trip Blank	98-36238	5/28/98	601
140101-1633	Trip Blank	98-36238 Lab dup.	5/28/98	601
140101-1634	L-87-3	98-36366	5/28/98	601, NAP
140101-1635	92-1	98-36368	5/28/98	601
140101-1636	92-4	98-36369	5/29/98	601
140101-1637	92-3	98-36367	5/29/98	NAP
140101-1638	B-Street	98-36370	5/29/98	524.2
140101-1638	B-Street	98-36370 Lab dup.	5/29/98	524.2

2.0 EVALUATION OF BLANK ANALYSES

Laboratory and field blanks were analyzed for these sample rounds as summarized in Table 2. All of the field blanks were trip blanks while all of the laboratory blanks were reagent blanks.

Table 2.0

Field and Laboratory Blanks

Sample Number	Sample Type	Laboratory ID #	Sample Date	EPA Method
140101-1591	Trip Blank	97-70112	11/23/97	601
140101-1624	Trip Blank	98-35401	5/21/98	601
140101-1633	Trip Blank	98-35238	5/28/98	601
N/A	Reagent Blank	Reagent Blank	11/19/97	5030
N/A	Reagent Blank	Reagent Blank	11/21/97	5030
N/A	Reagent Blank	Reagent Blank	11/22/97	5030
N/A	Reagent Blank	Reagent Blank	11/22/97	5030
N/A	Reagent Blank	Reagent Blank	5/29/98	5030
N/A	Reagent Blank	Reagent Blank	5/29/98	5030
N/A	Reagent Blank	Reagent Blank	5/30/98	5030
N/A	Reagent Blank	Reagent Blank	6/04/98	5030
N/A	Reagent Blank	Reagent Blank	6/06/98	5030
N/A	Reagent Blank	Reagent Blank	6/05/98	5030

Notes: N/A - Not applicable

No compounds were detected in any of the trip blanks or in any of the laboratory reagent blanks. Therefore, no changes to the validation levels of primary samples are necessary due to blank analyses.

3.0 EVALUATION OF DUPLICATE ANALYSES

Four sets of field duplicates and four sets of laboratory duplicates were analyzed during the November 1997, and May 1998 sample rounds. Table 4.0 summarizes the locations and dates of the duplicate samples.

None of the duplicate samples exceeded a relative percent difference of 30%. Therefore, no changes to the validation levels of primary samples are necessary due to duplicate analyses.

Table 3
Duplicate Sample Analyses

Sample Number	Sample Location	Sample Type	Laboratory ID #	Sample Date	EPA Method
140101-1588	92-1	Primary Sample	97-70110	11/11/97	601
140101-1588	92-1	Lab. Duplicate	97-70110	11/11/97	601
140101-1601	L-87-2	Primary Sample	97-70473	11/14/97	601
140101-1602	L-87-2	Field Duplicate	97-70474	11/14/97	601
140101-1603	94-1	Primary Sample	97-70475	11/14/97	601
140101-1604	94-1	Field Duplicate	97-70476	11/14/97	601
140101-1614	89-4	Primary Sample	98-35394	5/20/98	601
140101-1615	89-4	Field Duplicate	98-35395	5/20/98	601
140101-1621	L-88-13	Primary Sample	98-35390	5/21/98	601
140101-1621	L-88-13	Lab. Duplicate	98-35390	5/21/98	601
140101-1623	4	Primary Sample	98-35400	5/21/98	601
140101-1623	4	Lab. Duplicate	98-35400	5/21/98	601
140101-1629	L-87-7	Primary Sample	98-35240	5/28/98	601
140101-1630	L-87-7	Field Duplicate	98-35237	5/28/98	601
140101-1638	B-Street	Primary Sample	98-35370	5/29/98	524.2
140101-1638	B-Street	Lab. Duplicate	98-35370	5/29/98	524.2

4.0 EVALUATION OF HOLDING TIMES

All of the samples analyzed by EPA Methods 601 and 524.2 were preserved by being acidified to pH values below 2.0. Properly preserved samples for analysis by EPA Method 601/624 can be stored for up to 14 days prior to analysis. A review of all holding times revealed that none of these samples exceeded 14-day holding period.

The ferrous iron sample for well L-87-2 (lab #97-70473) taken during November 1997 arrived at the laboratory past the 24-hour holding time. This sample was analyzed by the laboratory and the results have been downgraded to qualitative. The nitrate and ferrous iron samples for well L-87-3 (lab #98-36366), taken in May 1998, was received by the laboratory past the holding time. The nitrate sample for well 92-3 (lab #98-36367), taken in May 1998, was received by the laboratory past the holding time. These samples were analyzed and the results have been degraded to qualitative.

5.0 EVALUATION OF MATRIX AND SURROGATE SPIKE RESULTS

All matrix spike and surrogate spike recoveries were within acceptable limits. All U.S. EPA water supply quality control samples were within recovery limits. The matrix spike, surrogate spike, and U.S. EPA water supply quality control sample results are provided in Appendix A of this report.

6.0 MISCELLANEOUS QA/QC EVALUATIONS

Two of the ferrous iron samples arrived at the laboratory unpreserved. The ferrous iron samples for wells L-88-10 (lab #97-70133) and 95-1 (97-71749), taken in November 1997, were not filtered or preserved in the field. They were filtered and preserved in the laboratory and then analyzed. The results for these samples have been degraded to qualitative.

7.0 VALIDATION LEVEL ASSIGNMENTS

All analytical results for the November 1997 and May 1998 sample rounds are acceptable for quantitative data analysis except those listed in Table 4 which have been downgraded to qualitative status.

TABLE 4
Analytical Results Degraded to Unusable Status

Sample Location	Sample Date	Sample Number	Chemical Name	Conc. (mg/l)	Validation Qualifier	Reason
L-88-10	11/12/97	140101-1590	ferrous iron	<0.1	B	Not preserved
L-87-2	11/13/97	140101-1601	ferrous iron	1.3	B	Holding time
95-1	11/18/97	140101-1607	ferrous iron	<0.1	B	Not preserved
L-87-3	5/28/98	140101-1634	ferrous iron	<0.1	B	Holding time
L-87-3	5/28/98	140101-1634	nitrate	2.77	B	Holding time
92-3	5/28/98	140101-1635	nitrate	0.75	B	Holding time